ISSUE 3

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Military Vehicle Special

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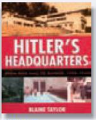

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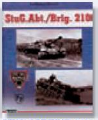

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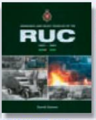

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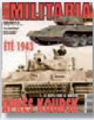

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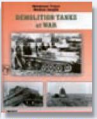

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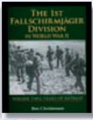

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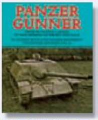

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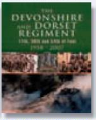

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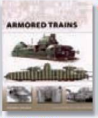

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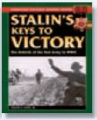

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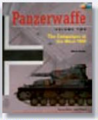

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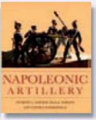

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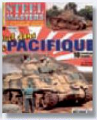

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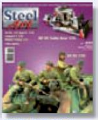

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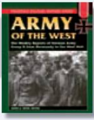

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The British Terrapin amphibian would be an unlikely choice for a major plastic kit manufacturer– see how Richard Brissette and Mark Bannerman built one from scratch beginning on page 60.

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This is the first of our 'special issues' for 2008 and it continues the format and numbering sequence of the Collectors' Editions we began last year, as Issue 3, and covers military vehicles with modelling and historical features. Most of the articles in this issue are lengthy and in depth and larger than the articles we normally feature in monthly issues of ***Military Modelling*** magazine.

Steve Zaloga has two features in this issue, both on recently released kits – Tamiya's IS-3 heavy tank (Steel Stalin) and Academy's US 105mm Howitzer Motor Carriage in 'Armoured Red Legs. The latter made its debut in combat with the British army in North Africa, and Peter Brown details its deployment at El Alamein backing up Steve's feature with a historical article from the British aspect.

An extensive feature on scratch building the British Second World War Terrapin amphibian by Richard Brissette and Mark Bannerman and the Japanese Type 2 *Ka Mi* kit from John Prigent introduces a bit of a nautical theme to this issue. Historical features in addition to Peter Brown's 'Priests at El Alamein' take a look at the 'Staffordshire Yeomanry in Normandy' by Peter Heath and what colours the British Shermans were painted in North Africa is related by Mike Starmer in 'Middle East Sherman Colours'. Harvey Lowe's feature on the German Brummbär assault gun in 1:72 scale describes how to combine parts from different kits to get the model you want …

Two further special 100-page issues are planned for this year, and the next one out will be Issue 4 and will feature modelling miniature figures, and a happy band of ***Mil Mod*** contributors are working away on articles for its publication date of 27th June. The final Collectors' Edition will be Issue 5 and this will be a photo-feature edition packed with photos from the Euro Militaire competitions (20th – 21st September in Folkestone) and due for publication on 31st October. Collectors' Editions for this year offer the best in military modelling and are not to be missed. Keep an eye out for them on the newsagents' shelves – though if you are a ***Mil Mod*** subscriber then they will be delivered to your door as part of your subscription.

Please let us know what you think about the Collectors' Editions and if you have any suggestions for themes that you think would appeal to a wider modelling audience then please let me know at ken.jones@magicalia.com

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● Additions are constantly being made to the new Website and we listen to your suggestions for improvements and additions that will help us give you what you'd like to see. There are benefits for subscribers to Military Modelling magazine and also for those who intend to become subscribers. It's never been easier to subscribe to Military Modelling magazine and you can do it on line – a facility especially useful for readers outside of the United Kingdom.

● The Web Editor is Vinnie Branigan, who is an active modeller and you can see his work on line. He also runs the lively forum and presents announcements and reviews of new products – figure and AFV kits, books, materials and displays the latest news items about events and shows that he and others have attended, and also what's happening in the military modelling world.

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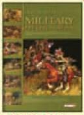

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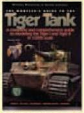

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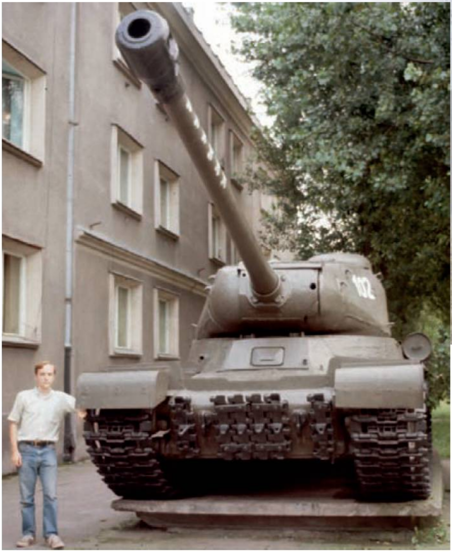
Steel Stalin

The Soviet IS-2 is one of Steve Zaloga's favourite tanks. He provides a history of these Second World War Soviet heavy tanks and assembles the latest Tamiya 1:35 scale injection moulded plastic kit of the type



My first close encounter with a full-size IS-2 was in 1975 while attending Polish language classes at the Jagiellonian University in Krakow. This is the IS-2 preserved in neighbouring Nowa Huta in front of the ZBOWID hall and shows the characteristic stepped hull of the initial production version. This type is depicted in the dragon kit, but is an earlier configuration than the Tamiya kit.

The IS-2 Stalin has long been one of my favourite tanks, so I was very happy to hear that Tamiya was adding it to their growing list of 1:35 scale Allied World War II tanks. The older Dragon kit is not bad, but it has developed a reputation over the years amongst the Red Army cognoscenti about its slightly small road-wheels and slightly squashed suspension. Tamiya brings its traditional hallmarks of easy assembly and sharp detail to this new rendition of the Stalin heavy tank.

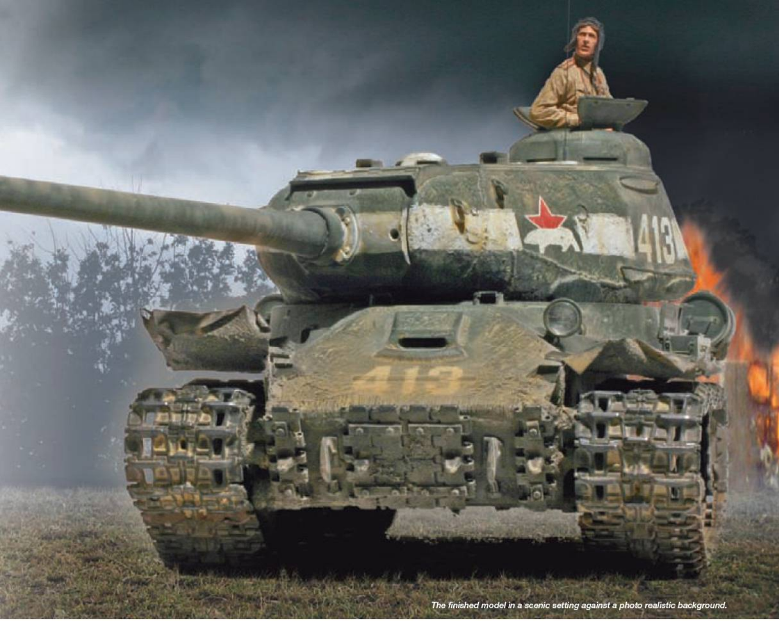
Historical background

The growing obsolescence of the KV heavy tank during the summer 1943 battles led the Red Army to start development of a significantly redesigned heavy tank, the *Obiekt 237*. The design used some of the components of the KV-13 universal tank, but the new turret was larger to better accommodate a much heavier gun. The new *Obiekt 237* heavy tank was re-named 'IS' after Iosef Stalin instead of the discredited war minister, Klimenti Voroshilov, who was the namesake for the earlier KV series. The IS series is often mistakenly called JS, based on the German transliteration of the Russian Cyrillic alphabet, which is not the same as the English transliteration.

There was some debate within the Red Army about the weapon needed for the new heavy tank. At first, the consensus was to arm the tank with the 85mm gun with a performance similar to the German 88mm gun, and its ammunition was already in widespread production both for the SU-85 tank destroyer and for the 85mm antiaircraft gun. The original version of the IS heavy tank with this gun, the IS-85, entered production at Chelyabinsk in December 1943. It was later redesignated as the IS-1. However, in late 1943, its armament was reconsidered. To begin with, the new T-34-85 tank would be armed with the same gun, so it made sense to give the IS a heavier weapon. A total of 67 IS-85 was built in 1943 and 40 in 1944 before production switched entirely to the IS-122.

Although most early Russian accounts of the history of the IS tanks stated that the IS-85/IS-1 did not see combat, more recent accounts such as Igor Zheltov's, *Tanki IS v boyakh* (*IS Tanks in Combat*) indicate that in fact they did see action in early 1944, starting with the 13th Guards Breakthrough Heavy Tank Regiment at Fastov station and the 8th Guards Heavy Tank Regiment in the Korsun-Shevchenkovskiy fighting. The first confirmed encounter between the IS-85 and Tigers was on 4th March 1944 between the 1st GTTPP and the *s.Pz.Abt. 503* near Starokonstantinov.

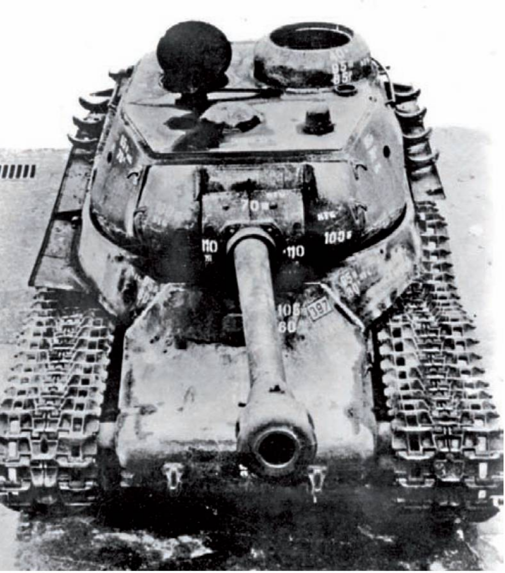
The primary role of the new IS heavy tank was not tank fighting. The IS tanks were issued to special guards heavy tank regiments. The role of these regiments was to assist in breaking through German defences during offensive operations.



The finished model in a scenic setting against a photo realistic background.

The Stalin tank's tactical role had significant repercussions in the selection of a main gun. The best tank gun for the IS series from a tank-fighting standpoint would have been the new D-10 100mm gun being developed for a new tank destroyer. Although the IS was experimentally fitted with 100mm guns, this option was rejected, and production of 100mm ammunition was inadequate and no armour piercing ammunition was ready yet. The other option was a 122mm gun derived from the common A-19 field gun that was attractive for two reasons. It offered good, though not great, anti-tank performance due to the sheer size of its projectile rather than the projectile speed. But more importantly, it was a fearsome direct fire weapon, firing a massive 25 kg high explosive projectile. This was six times heavier than the Panther's puny 4 kg HE round and three times heavier than the Tiger's 9 kg HE round. This was an important feature since the primary role of the IS tank was not to fight German tanks, but to smash through German infantry defences where good high explosive firepower was essential. The first production batches of the *Obiekt 240*, originally designated IS-122, used a derivative of the A-19 gun with the normal screw breech, but this quickly switched to the improved D-25T with a fast-action tank-type breech. The IS-122 was later

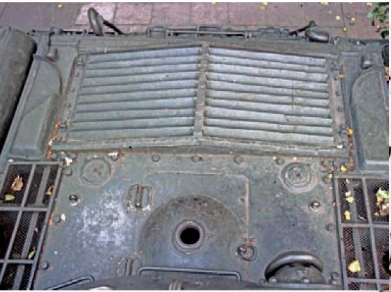
A Soviet IS-2 heavy tank with the early stepped nose on the way to the front in the summer of 1944. During Operation Bagration in Byelorussia in June-July 1944, there were only two Guards heavy tank regiments available in that sector.

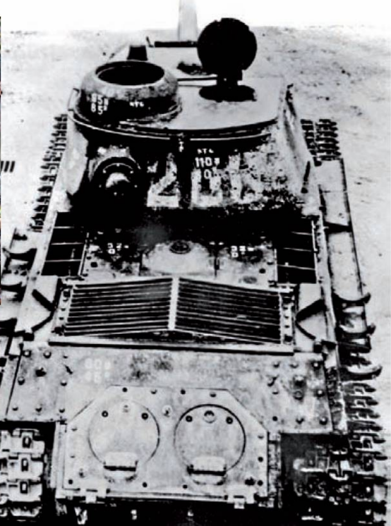


re-designated as the IS-2; some early combat reports also listed it as the KV-122.

The first batch of 150 IS-2s was finished in February, followed by 275 in March at the Chelyabinsk Kirov Plant (ChKZ). Production of the T-34 was halted at Chelyabinsk in April in order to increase IS-2 production, which reached 350 that month. A new assembly hall was added at the Tankograd complex, and this added to production totals by spring. The first IS-2 separate guards heavy tank regiments (OGvTTP: *otdelniy gvardeiskiy tyazheliy tankoviy polk*) began to be formed in early 1944. These regiments had a total of 21 IS-2 tanks formed into four companies with five tanks each. Heavy tank regiments not given the 'guards' honorific were designated as separate breakthrough tank regiments (*otdelniy tankoviy polk proryva*). The first IS-2 units were the 29th, 11th, 14th, 6th, 71st, 48th and 72nd OGvTTP. These early regiment were equipped with the first production batches of the IS-2 that had the 'Tiger' style muzzle brake. The 48th and 72nd OGvTTP were the first regiments to receive the IS-2 with the standard cast muzzle brake and the sliding breech guns. Some units, such as the 29th OGvTTP, had a mixture of IS-1 and IS-2 tanks.

The first combat use of the IS-2 regiments took place in April 1944 when Colonel Tsiganov's 11th Guards Heavy Tank Regiment fought several skirmishes with the Tiger I tanks of *s.Pz.Abt. 503* near Tarnopol in support of the Soviet 6th Guards Tank Corps attack. At least one IS-2 regiment was used during a Soviet offensive operation in May 1944 in Romania, a strategic feint intended to distract the Germans from the main offensive in Byelorussia.

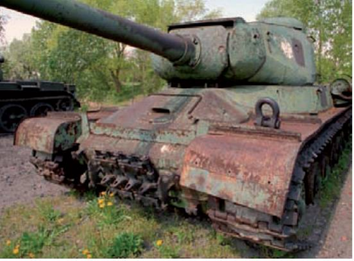


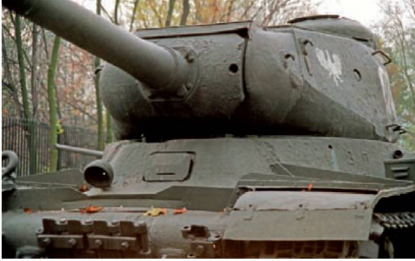


TOP: Although not of the best quality, this is a photo of one of the very early IS-2s captured by the Wehrmacht in the spring 1944 fighting and reveals some early characteristics such as the narrow gun mantlet and the PT4-15 'gumdrop' shaped gunner's periscope instead of the later MK IV found on Tamiya's model.

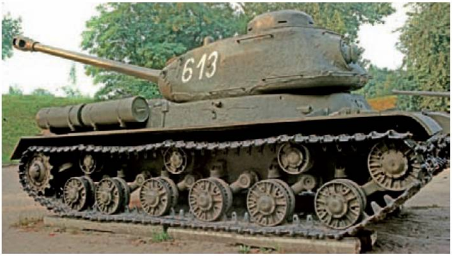
ABOVE: A useful detail view of the engine deck of the Nowa Huta IS-2.

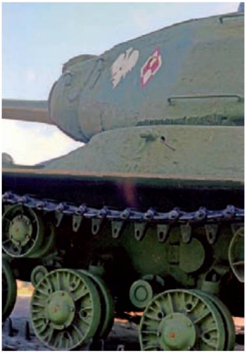
RIGHT: A captured IS-2 has some of the early features such as the 'wrap-around' grab-handles round the turret of the style seen on the KV-85.





ABOVE: LEFT: The armour museum outside Warsaw has a IS-2 with the 'Roman Nose'; this shows it in beat-up condition before it was repainted. ABOVE RIGHT: A close-up of the IS-2 at the army museum in Warsaw reveals the details of the early style, stepped nose as well as some useful details of typical casting texture.



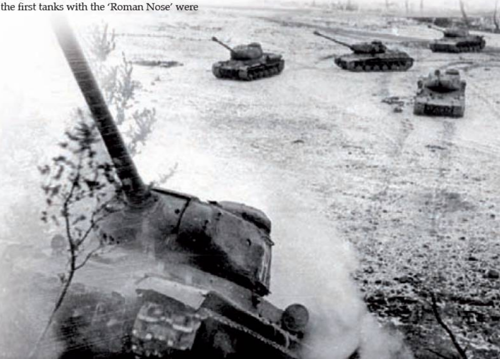


ABOVE: An early production IS-2 with stepped hull as preserved at the army museum in Poznan, Poland. RIGHT: Another Polish IS-2 with the stepped nose. Note the ammunition-reloading door on the hull side.

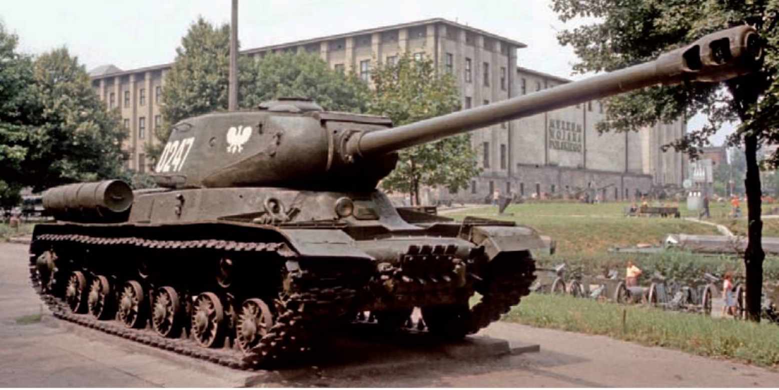
These IS-2 heavy tanks encountered near Tirgu Frumos surprised the German panzer crews. A company of Tiger I tanks from *Grossdeutschland Panzer Grenadier Division* opened fire at 3,000 metres, and were shocked to see their 88mm rounds harmlessly ricochet off the thick frontal armour of the IS-2s. A counter-attack by *Hauptman* B. Klemz's company knocked out three IS-2 heavy tanks, earning Klemz the Knight's Cross. The Tiger crews concluded that the IS-2 was well armed, well armoured, but somewhat slow and unmanoeuvrable compared to the Tiger I.

During the summer 1944 offensive operations, the IS-2 heavy tanks began to turn up in increasing numbers. The practice was usually to attach at least two IS-2 regiments to each front. One regiment was normally attached to a key army being used to secure a breakthrough, and the other to a tank corps for the exploitation phase of the operation. During the early summer offensive, Operation *Bagration* in Byelorussia, the separate Guards heavy tank regiments were still small in number. Only four IS-2 regiments could be allotted. Two of these regiments were honoured for their combat performance by being named for the towns they liberated, the 2nd Polotsk and the 30th Brest Guards Heavy Tank Regiments.

The evolution of the IS-2 continued through 1944. The mantlet of the IS-2, designed for the smaller 85mm gun, was not durable enough for the powerful 122mm gun, so a new wider mantlet was developed. There were efforts underway since February 1944 to improve the bow protection on the IS-122 and early combat with the IS-85 and first IS-122 revealed that even when German projectiles did not penetrate, spall was knocked loose into the fighting compartment. One of the earliest efforts was to simply add a set of spare track links to the bow and this was formally introduced on 15th June 1944. A more elaborate reconstruction of the nose design was completed in May 1944 and the first tanks with the 'Roman Nose' were



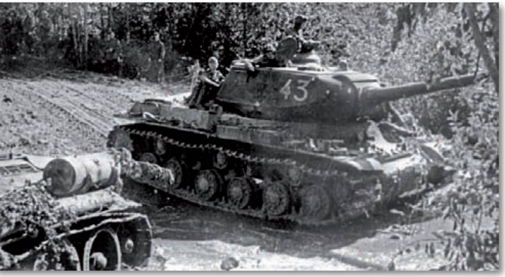
BELOW: New IS-2 Model 1944 heavy tanks began to appear in large quantities during the massive January 1945 offensives. These are tanks of a Guards heavy tank regiment with the 3rd Byelorussian Front in East Prussia. There were at least four IS-2 regiments on this front, the 75th, 81st and 82nd Heavy Tank Regiments supporting units of the 5th Army and the 77th Guards Heavy Tank Regiment supporting the 28th Army.



The Polish IS-2 tanks were not rebuilt after the war and so still show the wartime configuration. This is the example preserved at the Army Museum in Warsaw and is one of the early production IS-2 with the stepped front hull.

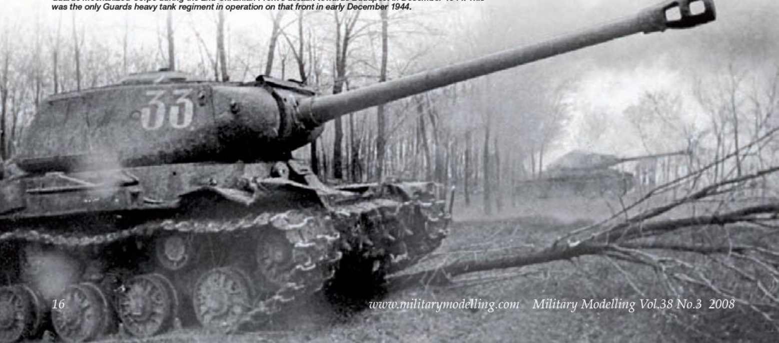
completed on 1st August 1944, though some Russian sources state production began in July. In the event, this 'Roman Nose' version is the configuration depicted in the Tamiya kit. This version has sometimes been called the IS-2m, but recent Russian accounts state that this designation was not used by the Red Army; recent Russian accounts refer to the initial version with the stepped nose as the IS-2 Model 1943 and with the Roman nose as the IS-2 Model 1944.

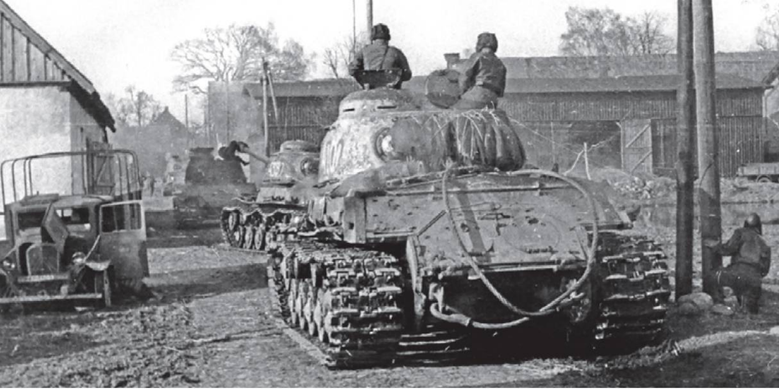
The details of the 'Roman Nose' differed. The version depicted in the Tamiya kit used a large, one-piece casting manufactured at Factory No. 200; UZTM initially produced a composite nose with the upper portion being cast, but the bow plate itself being a plate of 100mm rolled armour; Dragon depicted the UZTM nose in one of their kits. Starting in November 1944, some of the IS-2 tanks were manufactured with a 12.7mm DShK heavy machine gun; this became standard on all tanks manufactured in January 1945.



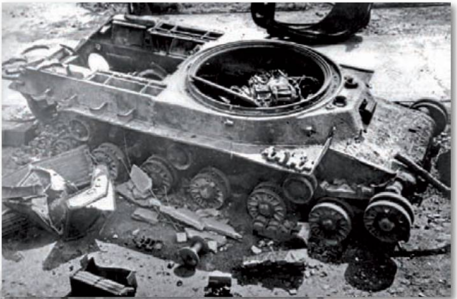
ABOVE: An IS-2 (with the initial stepped nose) of the 13th Guards Heavy Tank Regiment, 10th Guards Army of the 2nd Baltic Front on the approaches to Riga by the 2nd Baltic Front in September 1944.

BELOW: A pair of IS-2 (with the original stepped nose) of the 30th Guards Tank Regiment supporting the 2nd Guards Mechanized Corps during the 2nd Ukrainian Front's assault towards Budapest in December 1944. This was the only Guards heavy tank regiment in operation on that front in early December 1944.





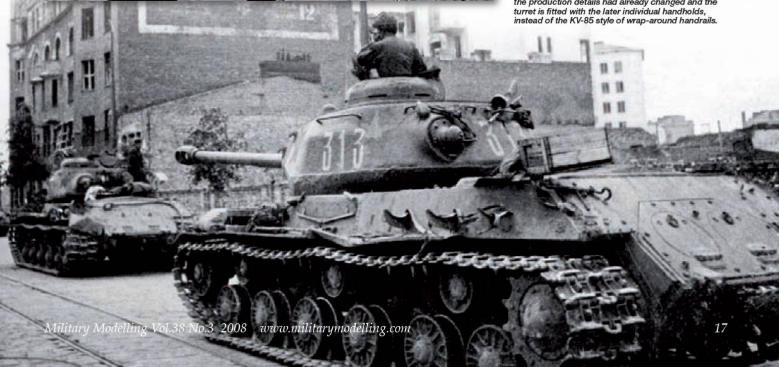
A company of IS-2 heavy tanks of the Polish 4th Heavy Tank Regiment enter Miroslawiec, Poland during the fighting there in March 1945. The tanks still show signs of their winter whitewash camouflage, a reminder of the bitter winter weather of 1945.

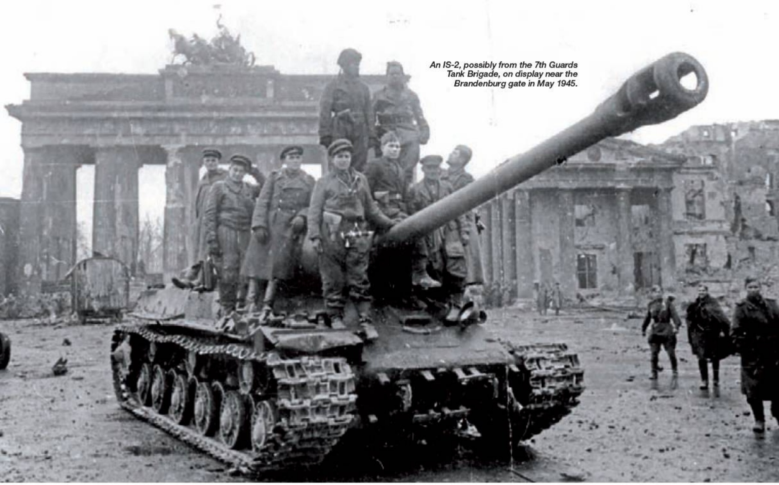


The IS-2 with 'Roman Nose' was not seen in significant numbers until the January 1945 offensive as most were shipped to heavy tank regiments being reformed in the autumn of 1944 for the final offensives. Increased production of the IS-2 permitted the formation of the more powerful guards heavy tank brigades in December 1944. These were equipped with 65 IS-2 tanks, three Su-76 light assault guns, 19 armoured transporters and three BA-64 armoured cars based around three tank regiments. They were formed to

LEFT: An IS-2 knocked out during the street fighting in Berlin in May 1945. A catastrophic ammunition explosion has blown off the turret and gutted most of the vehicle. This is an early IS-2, with the stepped front hull casting that was characteristic of production through the summer of 1944.

BELOW: A platoon of IS-2 heavy tanks of the 27th Guards Separate Heavy Tank Regiment commanded by Lt.Col. Dmitriy Gnezdilov enter Viipuri (Vyborg) during the opening phase of the campaign against Finland on the Karelian Isthmus on 20th June 1944. This was the only IS-2 unit used in this phase of the offensive, the regiment receiving its IS-2 heavy tanks beginning in March 1944, and they are still the early production type lacking the gun travel lock. However, the production details had already changed and the turret is fitted with the later individual handholds, instead of the KV-85 style of wrap-around handrails.

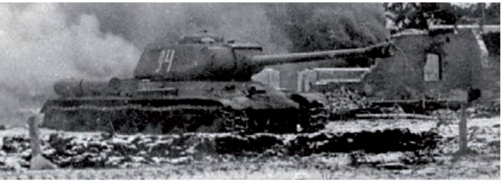




An IS-2, possibly from the 7th Guards Tank Brigade, on display near the Brandenburg gate in May 1945.

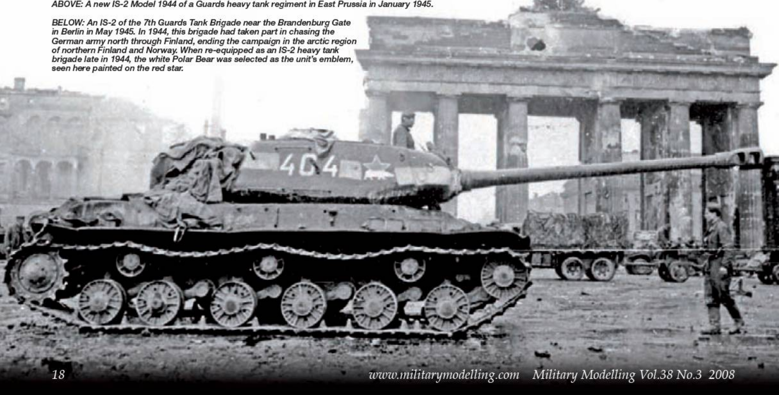
spearhead assaults on fortified lines with heavy infantry and engineer support during the forthcoming January offensives.

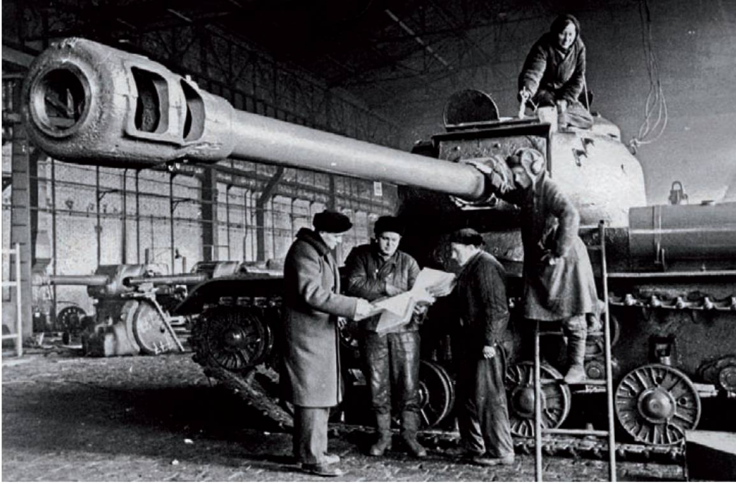
Besides the use of the IS-2 by the Red Army, the Polish Peoples Army (LWP) received 71 IS-2 which equipped two regiments and the Czechoslovak 1st Tank Brigade received a few. After the war, Soviet IS-2 were rebuilt and modernized as the IS-2M from 1954 to the mid-1960s. These can be easily distinguished by the reconfigured



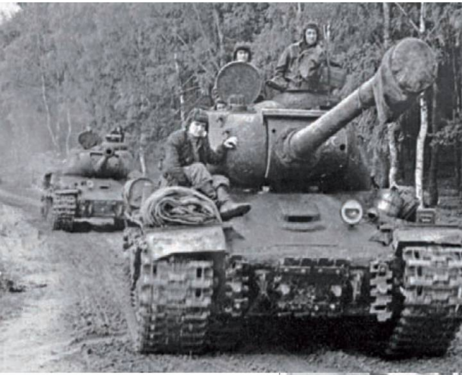
ABOVE: A new IS-2 Model 1944 of a Guards heavy tank regiment in East Prussia in January 1945.

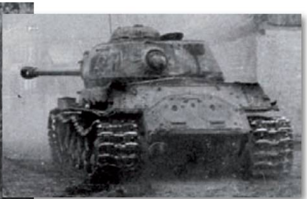
BELOW: An IS-2 of the 7th Guards Tank Brigade near the Brandenburg Gate in Berlin in May 1945. In 1944, this brigade had taken part in chasing the German army north through Finland, ending the campaign in the arctic region of northern Finland and Norway. When re-equipped as an IS-2 heavy tank brigade late in 1944, the white Polar Bear was selected as the unit's emblem, seen here painted on the red star.





By August 1944, production at the Chelyabinsk Kirov Plant was beginning to shift over to the improved IS-2 Model 1944 heavy tank that used a new front hull casting and a wider gun mantlet. Here a tank undergoes final inspection and painting in early 1945. In the background are gun assemblies for the ISU-152 heavy assault gun.

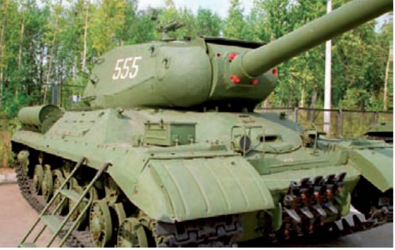


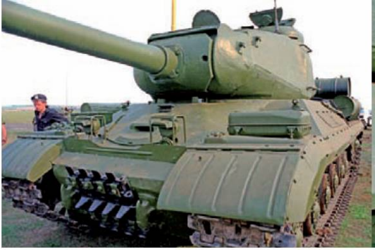


ABOVE: A Polish IS-2 of the 4th Heavy Tank Regiment engages targets in the village of Miroslawiec in western Poland in March 1945. This unit was mainly equipped with IS-2 heavy tanks produced in August 1944 in Chelyabinsk. This appears to be tank 4311, of the 1st platoon, 3rd company.

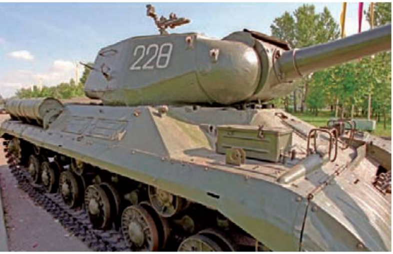
ABOVE: An IS-2 company moves up outside of Berlin in May 1945; there is a small white star as a tactical marking on the mantlet, and the front headlight has been partially painted out for night driving.

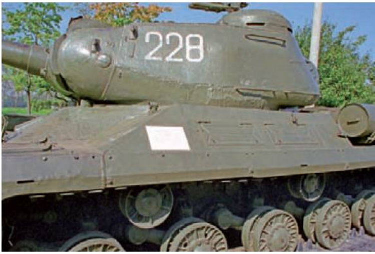
RIGHT: The citizens of Moravska-Ostrava in Czechoslovakia greet the crew of an IS-2 of the 42nd Guards Heavy Tank Brigade of the 38th Army of the 4th Ukrainian Front as they enter the city on 30th April 1945. The larger tank brigades often used a three-digit tactical number, the first number indicating the regiment, the second the company, and the third, the individual vehicle. These brigades had a nominal strength of 65 IS-2 heavy tanks.



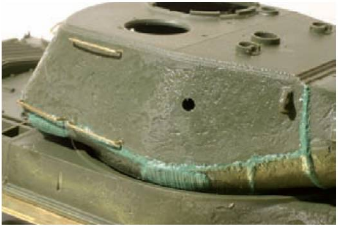


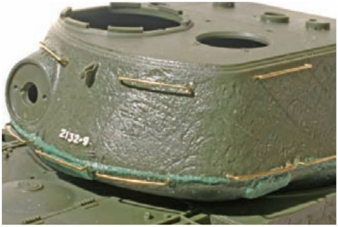
ABOVE LEFT: A rebuilt post war IS-2M at the Memorial Museum at Poklonna Gora outside Moscow. This shows the characteristic external stowage bins added during the reconstruction. ABOVE RIGHT: The Imperial War Museum at Duxford exchanged a British Conqueror heavy tank for this very nicely preserved IS-2M from the former Soviet Union. This fully operational Stalin shows the characteristic features of a post-war rebuild.





ABOVE LEFT: One of the IS-2M tanks preserved at the Memorial Museum at Poklonna Gora. ABOVE RIGHT: This view gives a good impression of the cast turret.





ABOVE LEFT: The mould seams around the turret casting were made from Duro Kneadatite epoxy putty and the handrails were replaced with brass wire. ABOVE RIGHT: The casting numbers on the turret rear are Slater's plastic numbers; the oval sprue cuts are made from Duro Kneadatite, replicating the torch cuts with a hobby knife blade soon after the putty had begun to harden.

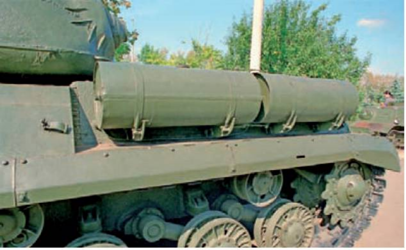
external hull stowage patterned after the IS-3 with stowage bins on the hull side. As a result of the rebuilding programme, few wartime IS-2 survive in Russia; since the Polish IS-2 were not rebuilt, the museums there have a much more extensive selection of IS-2 in the wartime configuration.

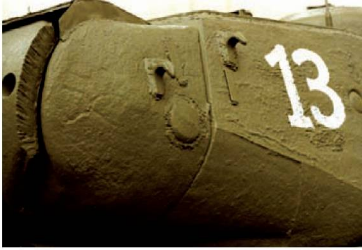
Tamiya's Model

Although I've long been interested in the history of Soviet tanks of World War II, I have not been an especially avid modeller of them in 1:35 scale as I find the colour schemes are a bit dull and the exteriors simple and lacking in interest. I've always thought that the IS-2 was the best looking Soviet tank of the war, but I wanted to add a bit of character to the Tamiya model.

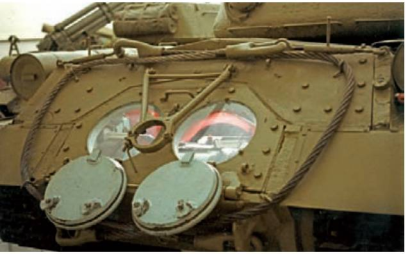
I fully expected that the kit would be a 'shake-'n-bake': throw in a tube of cement, shake the box, out pops a lovely model! So I wanted to do something to distinguish my model and the most obvious approach would be to add some texture to the cast armour, and to bang up the fenders. Neither of these approaches are especially necessary and modellers will find historical photos here of IS tanks in relatively clean condition with rather smooth casting. But the Stalin tank does provide an opportunity for texture and bashing. I've included a number of photos of museum IS-2, especially turret photos, to give some idea of casting textures. The turrets were cast in sand moulds, and they had sprue gates just like plastic kits. The sprues were cut, often with acetylene torches, leaving ragged mould marks. The Tamiya kit does depict some of these, but they can use a bit more definition.

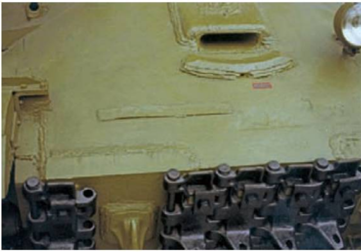
Since I wanted to bash up the fenders, I began by cutting the existing ones off the model, but I did leave the front supports to provide a gluing point for the forward fender



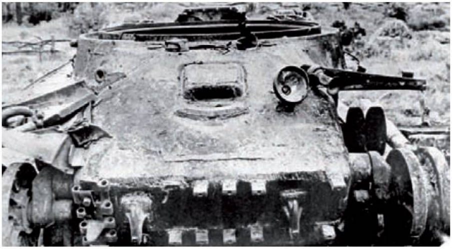


ABOVE LEFT: *Close-up view of the fuel tanks and their stowage straps on an IS-2M at Poklonna Gora; this is one of several different configurations.*
ABOVE RIGHT: *A useful view of turret casting detail on the IS-2 at Dresden Army Museum.*



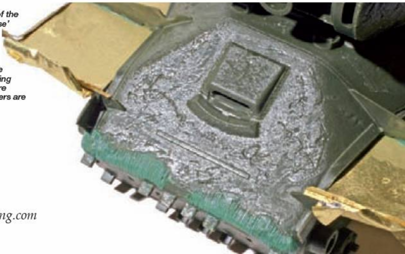


ABOVE LEFT: *A detail view of the rear of the Dresden Army Museum's IS-2 showing the tow cable and associated turnbuckles.* ***ABOVE RIGHT:*** *Front-end details of a IS-2 formerly at the Dresden Army Museum that has the UZTM composite nose with the sharp delineation between the upper casting and the rolled plate lower bow.*



ABOVE: *A demolished IS-2 shows the texture of the casting of a 'Roman Nose' version of the variety produced by Factory No. 200.*

RIGHT: *A close-up of the 'Roman Nose' bow casting after texturing, but before priming. The brass fenders are also evident here.*

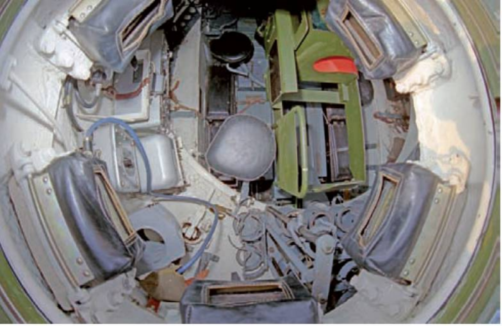


sections. The new fenders came from plain brass sheet that I bought at my local railroad hobby store. I suspect that the after-market photo-etch shops will probably produce sets of fenders for modellers not wanting to bother with raw brass sheet. Much like the actual fender, I stiffened them up by making the edge bend using a PE bending tool before gluing them to the kit hull using cyanoacrylate glue, though I did reinforce them below using some Duro Kneadatite epoxy putty for more durability.

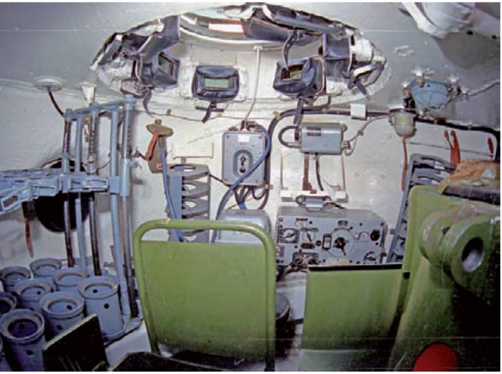
I then whacked the front of the fenders about a bit with a small hammer to make it appear that the crew had used a log for unditching, bashing the front fenders in the process. After the fenders were suitably 'dinged', I primed the brass areas with Floquil lacquer grey primer, as I was a bit concerned that the later coats of Tamiya acrylic wouldn't bond too well with so much raw metal.

Cast Texture Techniques

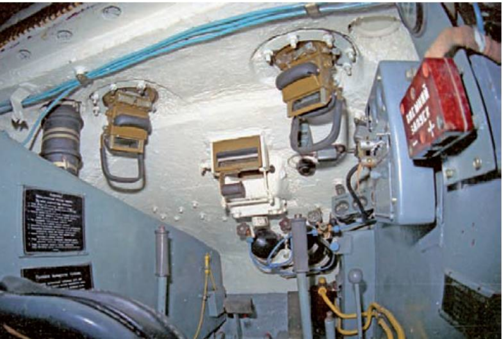
To emphasize the cast texture, I used three techniques. The turret can use some mould seams around the mould joints, as well as some sprue stubs. I made these using Duro Kneadatite epoxy putty, which is a bit stickier and more pliable than conventional epoxy putties. I used a hobby knife to score some gas torch gouges on the face of the oval sprue stubs. I used the same technique for the gas cuts on the bow casting. The subtler torch



For modellers inclined towards super details, this is a view down into the commander's hatch on an IS-2M.



ABOVE: The view from the loader's station over to the commander and gunner's stations and showing the details inside the commander's cupola at upper left. BELOW: This is the driver's station of an IS-2M. While few modellers will want to model this, this photo provides a good idea of the colouring of the MK IV periscope found on the commander's hatch of Tamiya's kit.



cutting effects on the rear hull plate was done with a thin coat of Tamiya grey hobby putty thinned with Testor's liquid cement and then scored with a hobby knife. I also did the sprue cuts on the commander's cupola, but it was subsequently pointed out to me that those were only found on the UZTM turret castings which didn't have some of the other features I depicted such as the casting numbers.

The third and most extensive form of texturing was to pit the surface of the castings. I used a variety of cutting bits in my Dremel Mini-Mite power tool, attempting to make them as random as possible. I also varied the cutting bits I used from large round ones to small and pointed bits to vary the effect. Once I was satisfied with this, I brushed the surface with lacquer thinner, in part to clean up the small remaining burrs of plastic dust on the surface, and in part to add some further crazing to the smooth plastic surface. Once it was all done, I then stippled on some Mr Surfacer 500 to add some more texture, which accounts for the large grey areas on the photos of the unpainted model.

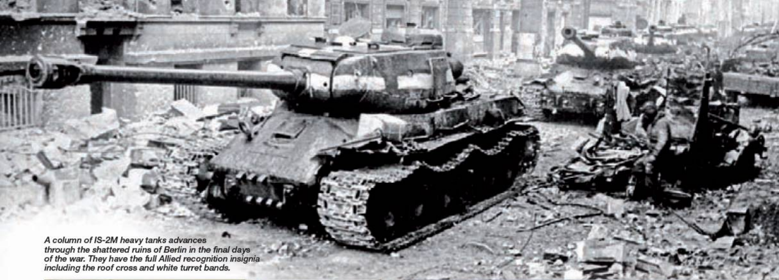
Detail Work

The Tamiya kit is quite good on most of the detail, but I noticed a lot of little things that can use attention. The fuel drums in the kit are provided with moulded-on straps and they do not connect properly to the mounting racks below. To do this properly means whacking off the straps and redoing them in brass of plastic sheet. I chose to do them in brass, as one of the more common methods of attachment was a large screw at the base of the strap, which attached into small fixtures on the mounting racks. This is a lot of tedious work, and once again, I wouldn't be surprised to see this detail covered in future PE sets.

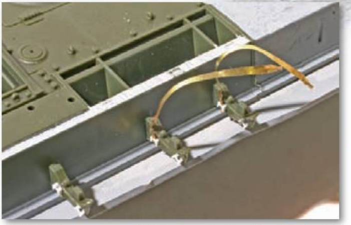
The rear deck has the small tow cable hooks moulded solid, so I cut these off and replaced them with brass rod. I also added some lifting rings to the various fittings on the rear and engine deck, although these were often missing on actual tanks. On the left front fender, I added an Open ZIP box from the ABER T-34-85 PE set; this was a standard tool box intended mainly for the gun cleaning rods and other tools. By leaving it open, it adds a little detail interest on the front corner of the tank. I also used the ABER sheet for a few other small details such as the stowage rack for the hull saw on the left side.

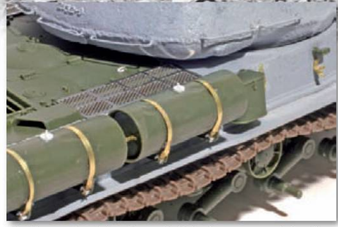
On the turret, I cut off the small upside down 'L' shape under the rear machine gun and replaced it with some hollow plastic sheet. The interior of the commander's hatch can use some added detail such as the strap and the pull chain for the lock.

I built the suspension out-of-the-box. I used the kit hard-plastic tracks as these make it easier to depict track sag and Tamiya's assembly jig for the upper run of track is an excellent idea and made the assembly fairly easy. Overall, the suspension went together without any problems. Once the front run of track had dried, I reamed out the hollow guide teeth on the front face of the track where they were especially prominent. Stalin track came in a variety of casting patterns, and some had lightening holes on the guide horns. I didn't bother attempting to duplicate this detail.

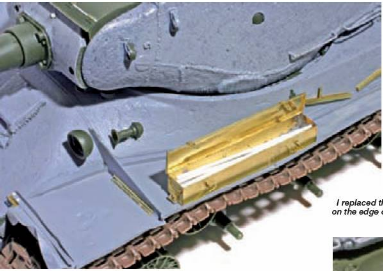


A column of IS-2M heavy tanks advances through the shattered ruins of Berlin in the final days of the war. They have the full Allied recognition insignia including the roof cross and white turret bands.





ABOVE LEFT: To better represent the fuel tank mounting, I cut off the kit detail and replaced it with more substantial attachments. The fuel tank straps were made from thin brass sheet with some brass wire attachment pins soldered on. ABOVE RIGHT: The fuel tanks with their straps in place. I also replaced the kit's fuel filler caps.

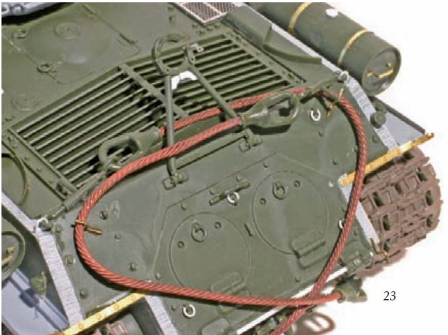


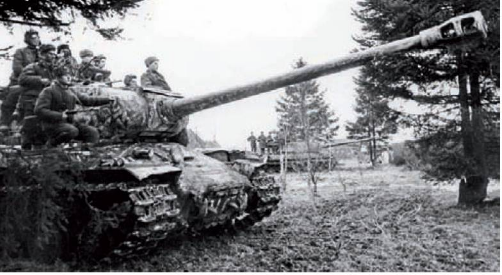
ABOVE: The ZIP box (Russian for zapas, instrument i priborov - spares, tools, and equipment) on the front left fender was replaced by the photo-etched one from the ABER T-34-85 set. These were standardized boxes and used on several Soviet AFVs.

BELOW: The turret can use some extra detail on the inside of the commander's hatches and some weld beads around the vent cover.

ABOVE: I test-fitted the tracks before painting them. There are numerous small injection pin indentations on the face of the track and rather than trying to sand them off, I filled them in using Tamiya white Surface primer, followed by some light sanding.

BELOW: I used Karaya soft copper cable in place of the kit's nylon thread. I replaced the torsion bar on the rear hatch and added some detail to the travel lock. The torch cuts on the edge of the rear hull armour plate were reproduced with Tamiya grey putty, thinned with liquid cement and textured using a hobby knife.





LEFT: A platoon of IS-2 heavy tanks of 29th Guards Heavy Tank Regiment, 4th Guards Tank Corps, 1st Ukrainian Front, prepare to move forward near Wislica, Poland in January 1945. Commanded by Lt.Col. Vasiliy P. Ishchenko, this regiment was one of the few equipped with KV-85 tanks in August 1943, and later re-equipped in October 1944 with new IS-2 Model 1944 tanks to make up for attrition. Although nominally a 'separate' regiment, it served with the 4th Guards Tank Corps through the remainder of the war. At the time of the January Vistula-Oder offensive, it had 19 out of an authorized 21 heavy tanks. This regiment or its neighbouring regiment were responsible for destroying a German King Tiger company near Lisow later in the month.

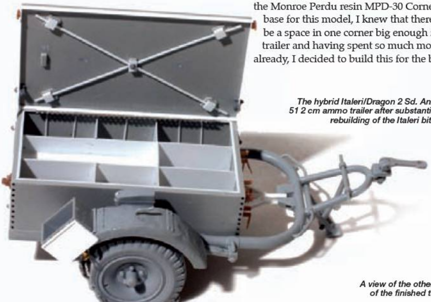
This is the tyre from Dragon's 2 cm trailer after shredding it with a power tool.

Diorama Bits

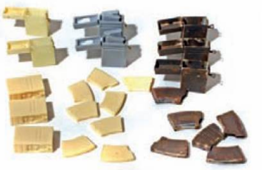
Some years ago I bought the Italeri 1:35 scale German *Sd.Anh. 51* 2cm ammo trailer kit, figuring that it would make a useful diorama accessory for some Sherman models I was building for my modelling book series for Osprey. In the event, I heard about the Lion Roar photo-etch set of 2cm ammo boxes and magazines, and ordered a some. This soon got out of hand, as I saw a set of resin ammo boxes and magazines at an AMPS show, and bought those as well. Since I planned to use the Monroe Perdu resin MPD-30 Corner Wall base for this model, I knew that there would be a space in one corner big enough for the trailer and having spent so much money already, I decided to build this for the base.

Starting work on the Italeri trailer, I wasn't very impressed with the detail. Rather than spend a few evenings cleaning up the mushy detail, I went to my local hobby shop and bought a Dragon *2cm FlaK 38* kit that has the same trailer and is much better detailed. I replaced the Italeri interior and also added a fair amount of detail and to provide a pretext for the trailer being abandoned, I shredded one of the tyres to suggest it had come to grief.

The Lion Roar photo-etch ammo boxes and magazines proved to be a real chore. The boxes were not too bad to assemble, but the little magazines each had several pieces that had to be folded, bent into shape, and soldered together. In contrast the resin K59 ammo boxes and magazines are very nicely detailed and a breeze to clean up. If I were ever to re-do the ammo supplies, I would go for the resin option.

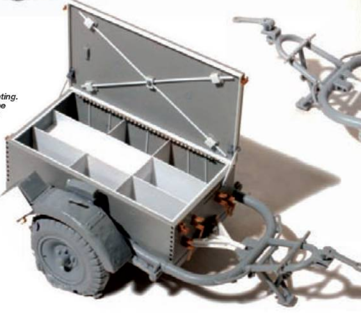


The hybrid Italeri/Dragon 2 Sd. Anh. 51 2 cm ammo trailer after substantial rebuilding of the Italeri bits.

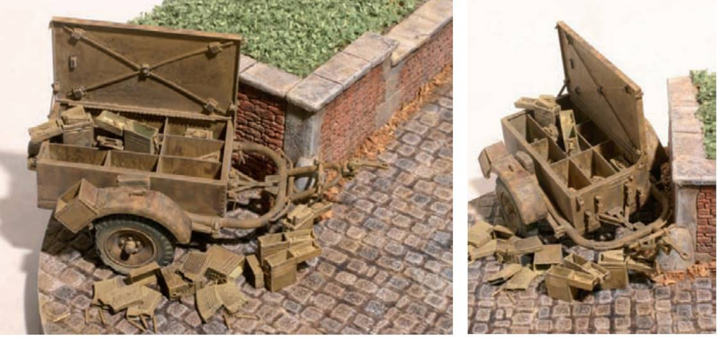


Assorted ammo boxes and 2 cm magazine prior to painting. The resin bits are from the K59 aftermarket set; the grey bits from the Dragon 2cm Flak 38 kit, and the metal parts are the Lion Marc PE set after discolouring in a 'Blacken-it' acid wash.

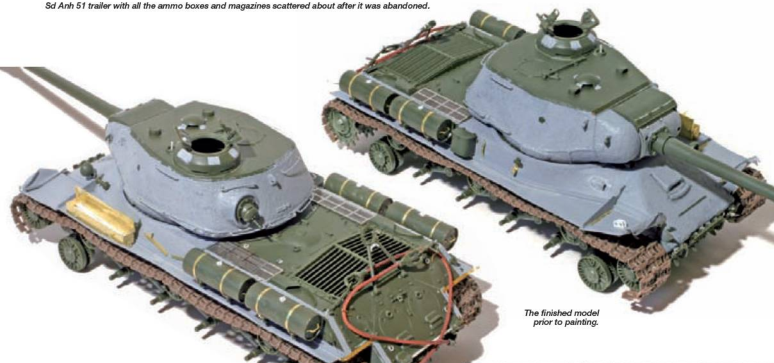
A view of the other side of the finished trailer.



The trailer prior to painting. The tool stowage on the front came from some Model Kasten bits.

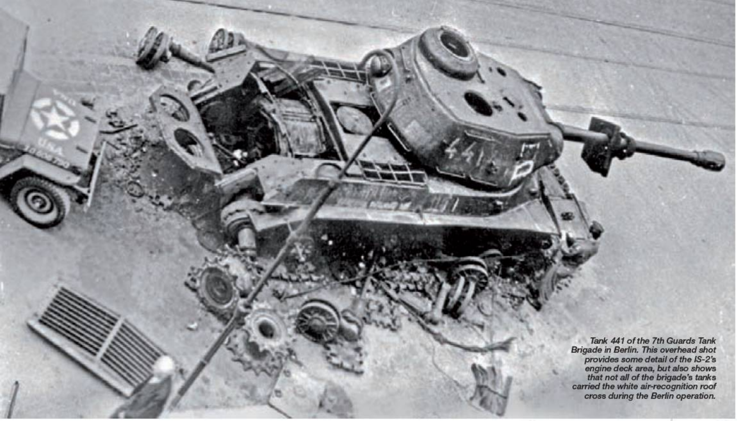


Sd Anh 51 trailer with all the ammo boxes and magazines scattered about after it was abandoned.

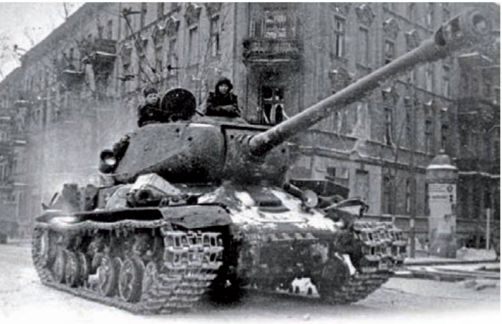


The finished model prior to painting.

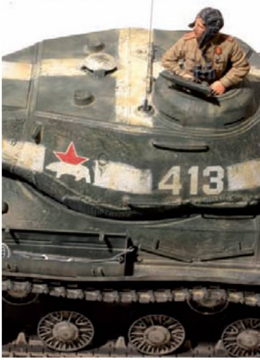
RIGHT: A Soviet officer reads the order of the day announcing the surrender of Germany to his troops in front of their IS-2M heavy tanks in Berlin, May 1945.



Tank 441 of the 7th Guards Tank Brigade in Berlin. This overhead shot provides some detail of the IS-2's engine deck area, but also shows that not all of the brigade's tanks carried the white air-recognition roof cross during the Berlin operation.



An IS-2M of the 34th Guards Heavy Tank Regiment, commanded by Lt.Col. Mikhail A. Oglobin in Poznan, Poland on 23rd February 1945. This tank has already seen some action as its fourth roadwheel station is missing a wheel, from mine damage or a worn-out wheel bearing.



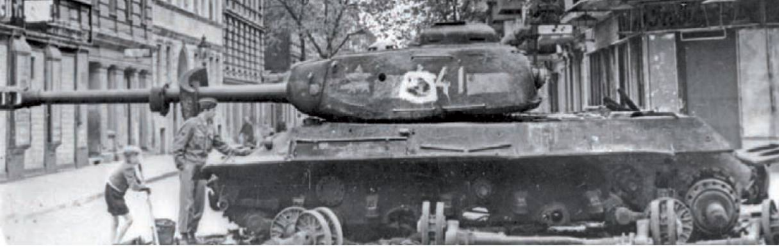
Painting the Model

I planned to do my Stalin in the well-known markings of the 7th Guards Tank Brigade with the distinctive Berlin markings and polar bear insignia. To paint the air identification bands, I began by airbrushing the appropriate areas in Tamiya Flat White XF2. Once it was dry, I masked off the bands using Tamiya Yellow Kabuki Tape.

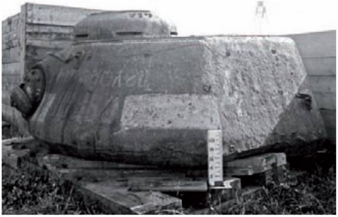
On the lower hull, I mixed up some Liquitex Ceramic Stucco and Winsor & Newton blended fabric acrylic texture gels to create some dried mud on the hull sides. Once this was dry, I began painting the model by airbrushing the lower portions in Tamiya Khaki Drab XF51 as the base coat for the dirty bits. On the upper surfaces, I started with a very dark green (Tamiya Dark Green XF61), and then added irregular patterns of several other shades of green, fishing up with my favourite faded green - Tamiya Field Grey XF65.

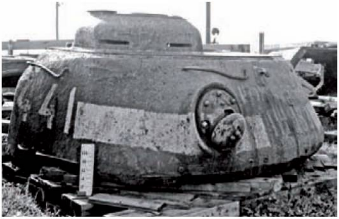
The aim here was to create some colour depth by using a variety of shades of green, and keeping the areas in the shadow accented with the darker shades, and the more exposed surfaces with the lighter shades. The same process applied to the lower surfaces, with the Khaki Drab XF51 later being over-sprayed with JGSDF Brown XF72 and then Buff XF57. I also airbrushed a bit of the dirt colours up on to the upper green surfaces. The tracks were begun in Khaki Drab XF51; then I masked off the areas where the wheels would scrape off any dust, and sprayed the remainder of the track with the two other earth shades. Once the basic painting was done, I did some further weathering by stippling some areas with dark green paint to suggest wear, and I also used some colour pencils to rough up the surface a bit. This is more noticeable on the white bands than on the green bits.

Once the basic painting was completed, I added the markings. The numbers came from dry transfer sheets, the 7th Guards Tank Brigade marking came from the kit decals, and the tank name (*Yastreb* - Hawk) came from a set of Russian Civil War decals I had in the decal bin. Once the decals were dry, I gave them an overcoat of Tamiya Clear X22 to seal them and prevent damage from the subsequent washes.



ABOVE: A US paratrooper from the 82nd Airborne Division examines a destroyed IS-2M (No. 441) of the 7th Guards Tank Brigade in Berlin after the war. The US Army later took the turret off this tank and shipped it back to the United States Aberdeen Proving Grounds for technical examination.

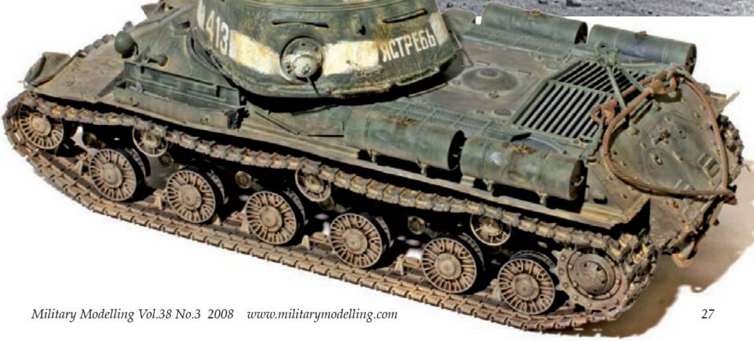


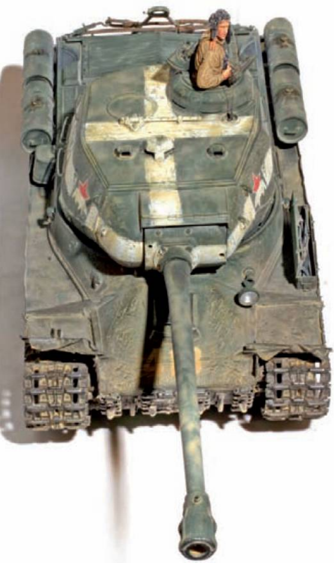


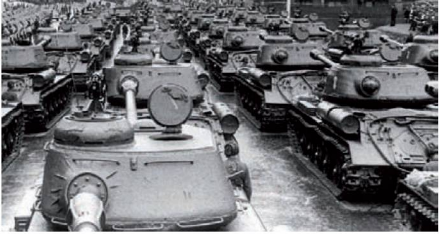
ABOVE LEFT: The turret from 441 the US Army shipped back to Aberdeen Proving Ground for inspection is seen there in 1950. The vehicle name is not distinct but appears to be Komsomolets Pnivo. ABOVE RIGHT: Another view of 441's turret of provides some idea of the casting texture as well as details of the rear-mounted DTM machine gun.

RIGHT: A Soviet tank column lead by an IS-2 moves down the street past the Brandenburg Gate in Berlin after the fighting.

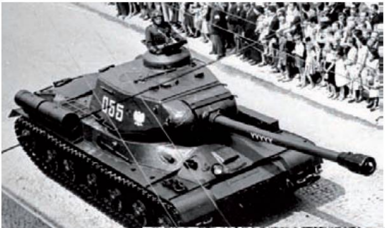
BELOW: The finished model.

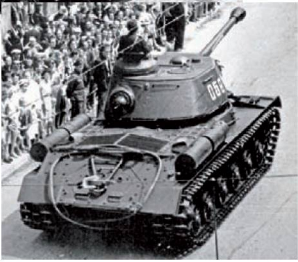






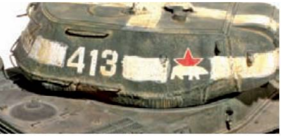
The streets leading into Red Square are crammed with IS-2 tanks as the Victory parade begins in Moscow in June 1945. The texture on the rear of the turret of the IS-2 at lower left shows the style seen on turrets cast at UZTM. These are late production IS-2 tanks with the 12.7mm DShK heavy machine gun mounted on the commander's cupola.

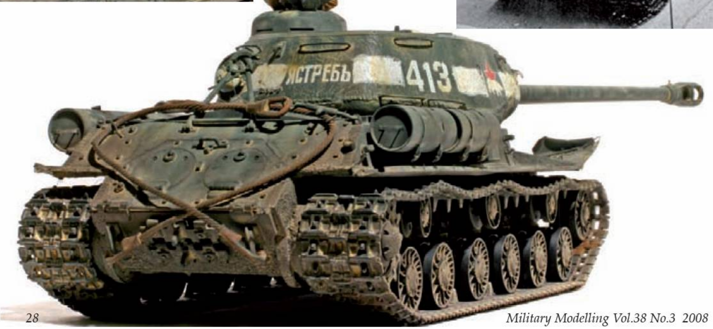


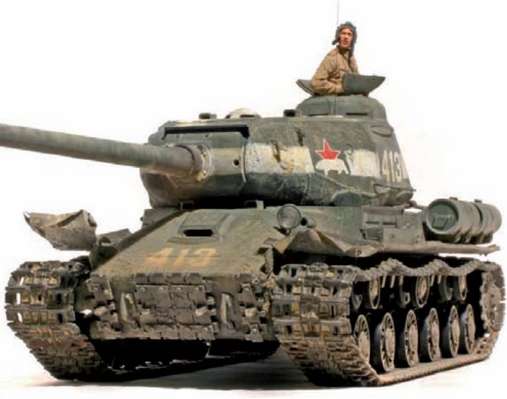


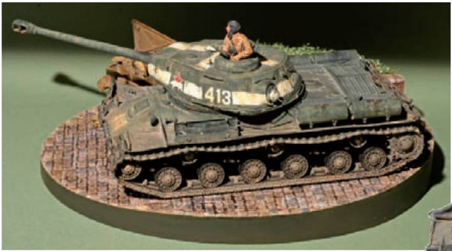
ABOVE: Following the end of the war in Europe, the Polish Army consolidated its surviving IS-2 tanks into the 7th Heavy Tank Regiment and it is seen here in a post war parade in Warsaw. The five white 'X' on the barrel are kill claims; this practice was mainly for post-war parades and does not seem to have been commonly used during the war. Poland operated 26 IS-2 and two IS-3 heavy tanks after the war.

RIGHT: Another view of a Polish IS-2 on a post war parade shows the official stowage pattern for the tow cable on the rear.

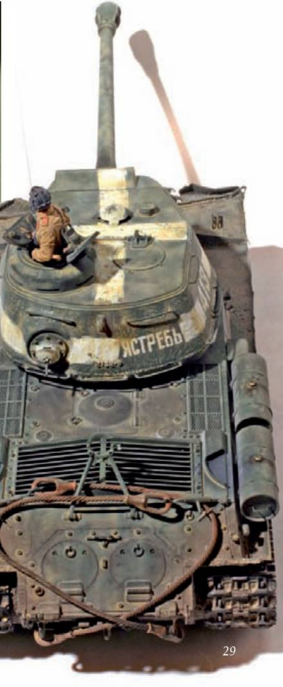








The model on its Monroe Perdu Corner Wall resin vignette base, one of my favourite bases for tank models of this size.



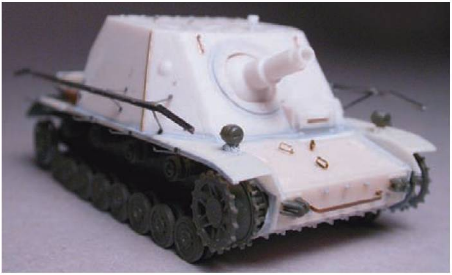
I used a light wash on the upper surface using mineral (white) spirits as the solvent, some Humbrol Light Earth 119 and Windsor & Newton Titanium White oil paint as the colour and some Winsor & Newton Liquin as the medium to help intensify the wash. I used a dark wash on the undersides, substituting some Holbein Sepia oil paint for the colour.

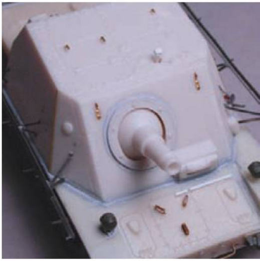
To accelerate the drying, I stuck the model in a drying box for a few hours. My drying box is a household plastic stowage box with a food dehydrator rigged above it. It accelerates the drying time of washes such as this one from the usual 12-24 hours to about 2-3 hours. It is really not necessary unless you are impatient like me and working to a schedule. Once the wash was dry, I did some dry brushing, partly to accent the detail and partly for weathering. I did dark dry brushing on the surfaces coated with the light wash, and light dry brushing on the lower surfaces where I had used the dark wash. Once everything was dry, I applied Testor's Dull Coat. Once this was dry, I did the last minute glossy bits such as some graphite metallic highlights on the tank's track, periscopes, and headlight.

The figure I chose to put into the commander's hatchway was the resin Alpine Russian Officer (35013), but I substituted another Alpine tanker's head for the one in the set. The Alpine stuff is beautifully sculpted and a pleasure to paint.

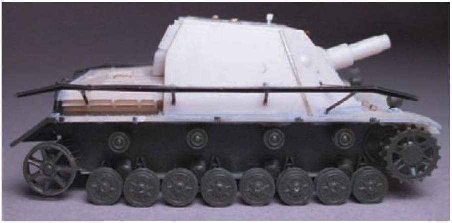
Conclusion

Overall, the Tamiya IS-2 is a lovely kit to build, and its ease of assembly encouraged me to push the limit on texturing the model. A variety of casting effects can be undertaken on this model since several different casting plants were involved and the texture varied from quite rough to quite smooth. This provides some welcome individuality to the model. ■



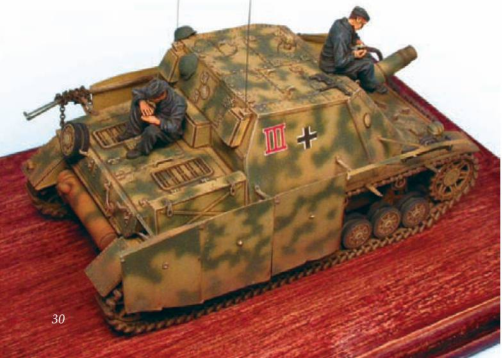


ABOVE: Note the grey coloured Mr Surfacer 500 hand brushed using a 000 paint brush, around various seam lines. This method works better then putty for thin seam lines. BELOW: The resin superstructure from Planet Models is well cast with crisp details, no warpage, and no air bubbles. As with all resin parts, wash them after sanding to remove any mould release agents.



German Grizzly

Harvey Low models the early variant of the Brummbär Sturmgeschütz IV SdKfz 166 in 1:72 scale, as it would have appeared during Operation Zitadelle in 1943



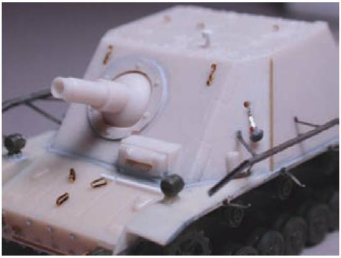
Nicknamed *Brummbär* or 'Grizzly Bear' by Western sources (the name was never officially adopted by the Germans), the *Sturmgeschütz IV* (*StuG IV*) certainly lived up to this name in appearance. Its massive fixed superstructure with a frontal armour thickness upwards of 100mm, housed a potent 150mm *Sturmhaubitze (StuH) 43 L/12* howitzer.

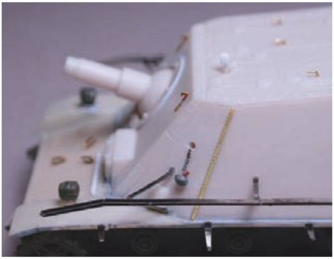
The gun had a vertical field of fire of -8° to +30° and a horizontal field of fire from -15° to +15°. Capable of destroying concrete bunkers, strong points and other so-called impenetrable field emplacements, it could also fire both shaped charge anti-tank rounds.

Originating from design drawings in 1942, Adolf Hitler was personally impressed, and ordered the production of an initial batch of 60 vehicles to be ready for spring 1943. All 60 were completed by May 1943. These vehicles cut their teeth in combat on 5th July 1943, at the Battle of Kursk by providing cover fire for the first wave of panzer grenadiers of the 292nd and 86th infantry divisions. Designated the *Sturmgeschütz IV für 15 cm (StuH43)* the new, boxed superstructure (designed by the Alkett factory) was mounted on a standard *Panzerkampfwagen IV Ausf G* chassis by Krupp, with eight vehicles based on a re-worked *Ausf E* and *F* chassis.

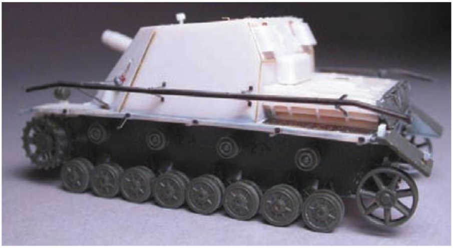
The early variant of the *Sturmgeschütz IV*, suffered from numerous flaws. The heavy weight of the superstructure, gun and its recoil, severely overloaded the chassis. Transmission failures and an overtaxed fuel hungry engine were also problematic. Finally the lack of a defensive machine gun made it, like its comrade in arms, the *SdKfz 184 Ferdinand* – an easy target for close-in infantry anti-tank attacks. While the loader's hatch had a tiny opening for an MG34, thus serving as a MG gun shield when in the open position, the use of the weapon in this manner exposed the crew unnecessarily. Most of these early vehicles were lost at Kursk and during the subsequent battles around Dneprstroy and Kharkov. Many of these limitations were fixed in subsequent mid and late variants produced after Kursk. These versions saw combat on all fronts, and had numerous structural changes.

My model represents a battalion command vehicle of *Sturmpanzer Abteilung 216*, attached to *schweres Panzerjäger-Regiment 656* – Army Group Centre. This unit was primarily equipped with the early version of the *Brummbär*.





ABOVE LEFT: Bits left over from photo etched brass accessories are very useful to form other bolt details and brackets. I never throw away left over photo-etched metal! ABOVE RIGHT: ABER photo etched 1:35 scale 'Narrow Weld Lines' (R-06) actually look quite convincing in this scale!



The mounting brackets are photo-etched parts that came with the Planet Models' kit and extremely delicate to attach, and were the most difficult operation in this project.

Key Specifications

Armament:	15 cm *Sturmhaubitze (StuH) 43 L/12* gun.
Gun Range:	6,400 metres
Weight:	24 tons
Engine:	300 hp Maybach HL 120TRM
Speed:	40 km/h
Range	200 km on road
Crew:	4 (early variant – mid/late variants had 5 crew)

Basic Construction

At the time of this writing, the only 1:72 scale models that exist of the 'early' variant are resin kits from Milicast (1:76 scale), ARMO (conversion kit), Planet Models, and TP Models. A pre-built die-cast model is also available from Dragon Models Ltd. The Trumpeter releases of the mid and late variants have now filled the void in what was about a 30-year absentee, with only the old ESCI mid production variant, filling the gap. Although a good kit, it suffered from poor wheels, return rollers, and tracks. The ESCI kit is now re-released under the Italeri banner. But with all these choices, I decided to 'kit-bash' an early variant using the resin upper superstructure from the Planet Models' *Brummbär* (MV029), and mate it to the side and rear walls of the Revell *Panzer IV* (03119 or 03122).

So you may wonder why I chose to modify a model rather than build an existing resin kit? I simply prefer the feel of styrene. Besides, the Revell *Panzer IV* is arguably one of the best 'Braille Scale' kits on the market for the type, with crisp modelling, fine accurate tracks, and excellent wheels. In addition to preferring plastic, resin also requires extra care when sanding.

First Step

The first step is to take the sidewalls off the running gear, and mate it to the Planet Models' hull. The rear hull plate was also added at this stage. Only minor cutting and sanding were required to mate these parts onto the resin hull. In fact, the Planet Models' *Brummbär* lower hull appears to be an almost near copy of the Revell hull! The Planet Models' upper hull comes in two main pieces with the superstructure being a single, large piece of resin. Fit was also very good. Only a minimal amount of Mr Surfacer 500 was required to eliminate the seam joints between the superstructure and lower hull, as well as the mantlet ring around the main gun. The gun itself is exquisite. Even the Trumpeter mid and late variants suffer from gun muzzles that are too narrow.

The Devil is in The Details

The Planet Models' superstructure is a very good representation of the early variant based on a reworked *Ausf E* chassis (as evidenced by the larger muffler), with extended armoured guard for the gun. Although the kit comes with some good photo-etched parts such as fine

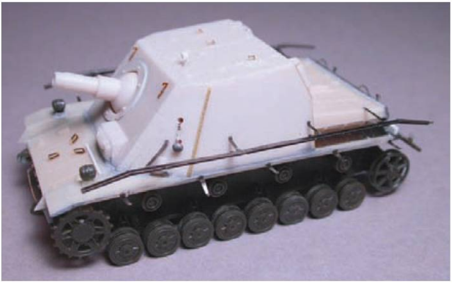
spare wheel brackets it does, however, lack many small details, the most notable are the weld seams and bolts on the front hull.

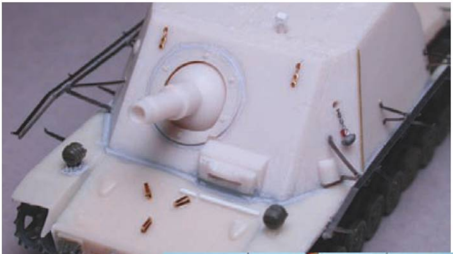
I added a splashguard in front of the driver's vision port, divided at the seam for the transmission hatch. Weld seams were also added to the most visible weld lines, using the 1:35 scale ABER Narrow Weld Lines (R-06); they actually look quite convincing in this scale! The bolts are from Grandt Line and since most photos of early *Brummbären* show factory-added spare track mounts, these were added from spare photo etch. (I never throw away any photo etch!) Other bolt details and brackets were also made from spare photo etch and parts such as the Bosch headlamps and towing pintles, are from the original Revell *Panzer IV* kit. The 'in-build' photos show all these details.

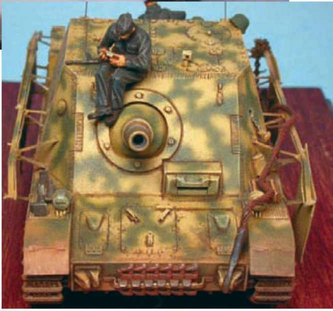
To add some interest, I drilled a hole and scratch built the plug for the left-side pistol port from bits of plastic. The chain is 1:700 scale photo-etched anchor chain from Gold Medal Models. Although early variants never had a close-in defensive MG, the crew carried MP40 submachine guns inside for close combat purposes that could be fired through pistol ports. I elected to suggest this with such a weapon at the side of one of the crewmen. Preiser and CMK make many fine 1:72 scale figure sets of WW2 German infantry that are useful for weapons and stowage. Grab handles were fashioned from thin brass wire and finally, a ranging periscope was added to the turret roof, scratch built from bits of styrene. The crew are actually slightly altered resin U-boat figures made by CMK and painted with Vallejo acrylics.

The side-skirts and mounting brackets are photo-etched parts that came with the Planet Models' kit. These are excellent, and have small holes that allow the skirts to hang realistically from the mounting brackets. The skirts can be bent at their edges to simulate damage and wear. The mounting brackets are extremely delicate to attach, and were the most difficult operation in this project. Constant bending and dry fitting with white glue, is the only way to ensure a good fit not to mention patience!

Mark the locations carefully, and set with gap-filling CA glue. This type of adhesive is the best and strongest for this purpose and I painted the model before I added the skirts.



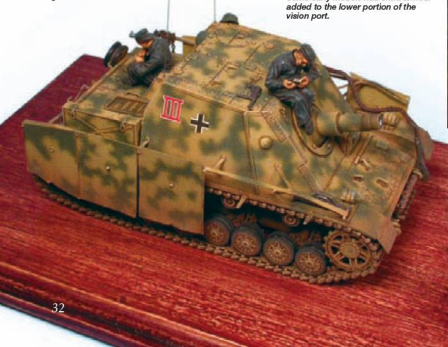




TOP: The main gun is beautifully cast. Make sure you install the gun in the ball socket first before you glue the ring mantlet on!

ABOVE: Bosch headlamps and towing pintles are from the original Revell Panzer IV kit.

RIGHT: The driver's vision port was similar to that used in the TIGER I. Some early models had extra armour added to the lower portion of the vision port.



It is subtle, but notice that I used different camouflage patterns on some of the side skirts, just to add interest. Due to the extreme delicacy of the skirts, I glued the model to a wooden base to avoid further handling.

Final details include helmets from Preiser, and a large tow cable made from fine wire, with the ends from the spares box.

Painting and Weathering

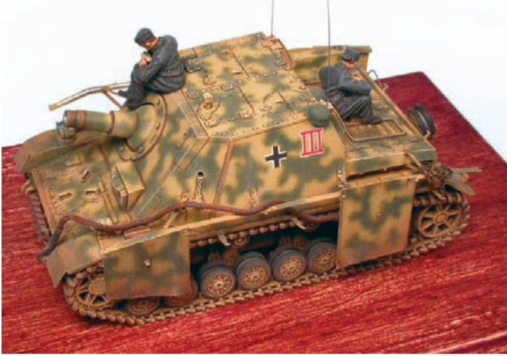
I started with a primer coat of Tamiya Yellow XF3. I prefer using yellow for primer coats, as it provides warmth to subsequent coats that are applied in successively thinner layers. I then applied Tamiya Dark Yellow XF60 to simulate RAL 7028 *Dunkelgelb* (with about 5% white added for scale effect). The vehicle's paint scheme was taken from a black and white photo. The scheme is a random pattern of olive green sprayed over dark yellow. There is some controversy as to whether the camouflage schemes worn on some vehicles at Kursk, were brown or olive green.

When spraying tight camouflage patterns, always set your airbrush to a very low psi. (I usually stay between 10 and 15 psi). Your paint mixture should be very thin – about 80% thinner to 20% paint, spraying fairly close to the surface and having a good moisture trap fitted helps on those very humid days. I prefer Gunze or Tamiya acrylics for this type of tight camouflage application because they go on much tighter than enamels. In this case, I chose Tamiya's Japanese Army Green XF13. I then applied the base dark yellow in very light mists to tone-down the overall colours. Tracks were painted dark brown, following by a thick oil wash of Raw Umber, and then dry-brushed lightly in silver. A reddish-brown colour was used on the muffler and a final light coat of Tamiya Earth XF52 was misted on all lower surfaces and tracks.

After letting the model dry overnight, a clear coat of Tamiya Clear X22 was applied to prep the surface as a barrier for the decals, which came from the spares box. Reapply the clear coat over the decals to protect against subsequent oil washes.

Weathering was accomplished with oil washes of Windsor & Newton Raw Umber. Small paint chips were produced using a fine brush and dark grey paint, touched up with a dark grey Prisma Colour pencil. Oil stains were made on the engine deck using Poly-S Oily Black (414326). Dry brushing was applied using a combination of white oil paint and the original acrylic base colour (with Grumbacher Poppy Seed Oil added to slow the drying time.

Final weathering was accomplished using MIG's weathering powders in various earth tones. A final coat of Model Master Acryl Flat (4636) and Gloss (4638) was mixed up at about 40% flat to 60% gloss, and applied to the entire model to seal the finish.



Good References

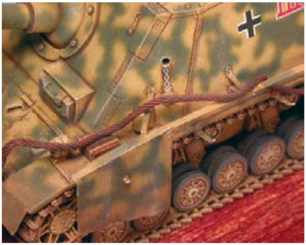
Achtung Panzer 3: PzKpfw IV Series and Variants, Mitsuru Bitoh. Dainippon Kaiga, 1993.
Richard Hedrick. Website: Sturmpanzer.com http://www.sturmpanzer.com/Default.aspx?tabindex=0&tabid=1
Sturmpanzer IV Brummbär Photosniper 12, George Parada and Krzysztof Mucha. Kagero Books, Canada, 2002.
SdKfz 166 Sturmpanzer Brummbär Volume 1. Waldemar Trojca and Markus Jaugitzthere, 2003. ■

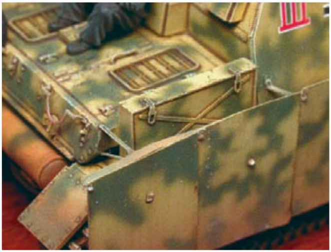
On the finished model weathering was accomplished with oil washes of Windsor & Newton Raw Umber. Small paint chips were produced using a fine brush and dark grey paint, touched up with a dark grey Prisma Colour pencil. Final weathering was accomplished using MIG's weathering powders.

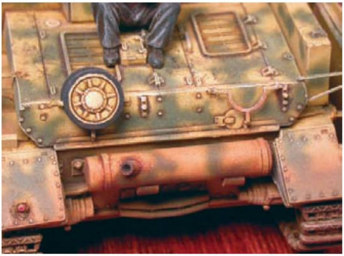
RIGHT: Notice the drilled out pistol port and hanging plug.

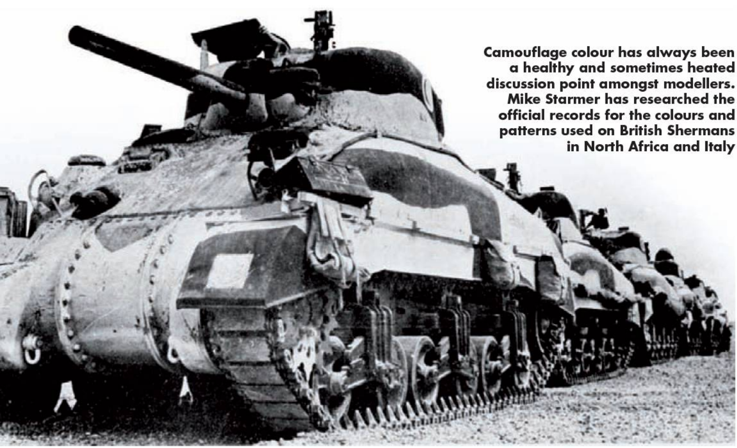
BELOW LEFT: Early variants were distinguishable by details such as the early style stowage box on the right rear. I added the tiny clasps using spare photo-etch.

BELOW RIGHT: The Planet Models' superstructure is a very good representation of the early variant based on a reworked Ausf E chassis as evidenced by the larger exhaust muffler.









Camouflage colour has always been a healthy and sometimes heated discussion point amongst modellers. Mike Starmer has researched the official records for the colours and patterns used on British Shermans in North Africa and Italy

A well-known photograph of a line of Sherman Mark IIs (M4A1) of the 9th Lancers, 2nd Armoured Brigade, 1st Armoured Division shows the Regiment's tanks were painted in a camouflage pattern following the recommended scheme in Drawing A/142/1 fairly closely. Note the white painted areas under the bow and the underside of the gun barrel at the mantlet end. The brackets of the bogie units have been painted the dark green disruptive colour. (IWM)

Middle East Sherman Colours

In view of the recent issue of the 1:35 scale Dragon Sherman III kit and a number of smaller scale models of this important tank, this might be a good time for modellers to find out about the two different official camouflage schemes widely carried in the Middle East with their variations and mention some oddities. This will correct the kit instruction sheet and some decal manufacturer's sheets that I have seen as these are somewhat lacking in accuracy.

Contrary to many modellers ideas on British camouflage schemes, there were official, specific disruptive patterns for vehicles, in the same way as there were for British aircraft, and by and large they were adhered to. In fact, not to do so was wilful disobedience of orders, a punishable offence in the army.

The development history and operational use of the Sherman tank have been covered in specialist publications and this article will deal solely with the colours and disruptive camouflage of what became the most common tank in the British and Commonwealth armies. The period covered begins in September 1942, when Sherman tanks were first delivered to the 8th Army in Egypt, and ends in Italy with the cessation of hostilities in May 1945.

There are numerous photographs of these tanks in British and Commonwealth service dotted about in various publications, occasionally with captions that have not been entirely correct when describing the colours or pattern thereon. Some older artwork depicting these tanks is in error too, because although the disruptive design shown has, in the main, been based on what is visible on a photograph, the artist has been obliged to use fair degree of imagination to complete the illustration. Two recent pictorially dedicated publications are in the 'Images of War' series; *Sherman Tank* by Gavin Birch, Pen & Sword 2005, ISBN 1-84415-187-5 and *British Sherman Tanks*, by Dennis Oliver, Concord Publications 2006, ISBN 962-361-131-5, have photographs of Middle Eastern Shermans throughout the period. In addition, Dennis Oliver's *Swallows* by Mushroom Publications about Shermans at Alamein is worth getting although this is mostly artwork.

The first batch of about 252 Sherman tanks sent from the USA that arrived safely in the Middle East by 9th September 1942 were almost all M4A1 tanks, originally destined for the US Army's 2nd Armoured Division. These were designated Sherman Mark II in British service. After unloading these tanks were taken to Base Ordnance Depots for fitting out with British equipment. The equipment list included radios, sand shields 'where necessary', 'Sunshield' brackets, Crusader type blanket boxes on the rear surfaces of the turrets, racks for five-gallon water cans and numerous interior fittings to stow equipment and ammunition, plus desert painting. Later, batches of the same version followed, but these soon began to be supplemented and then replaced by the twin diesel-engined M4A2, Sherman Mark Ill.

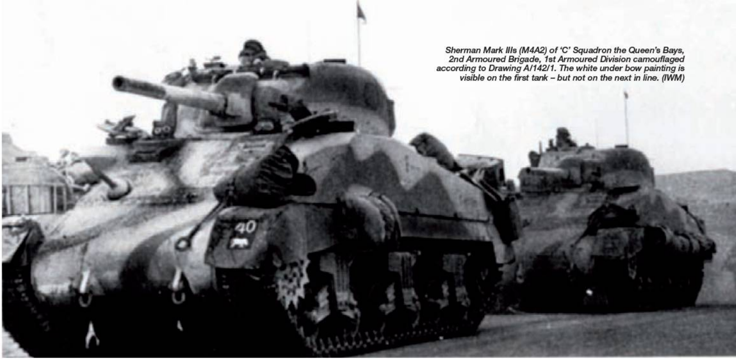
Official Painting Policy

In order to understand the later schemes we must first consider what policy was in force when the Shermans arrived. The painting policy in effect during 1942 originated in a signal from GHQ MEF, G.SD. 4/105 of 6th October 1941 and later confirmed by General Order (G.O.) 1272 of 5th December 1941. This specified a single basic colour with the option of one additional colour selected by commanders, to be superimposed on the basic colour. This was repeated in an order issued by GHQ to Australian Imperial Forces then in Palestine and Syria.

946. Camouflage - Painting of Vehicles.

1. In future, all vehicles, AFVs and Artillery equipment in the Middle East will be painted with a common basic colour. This will be either Light Stone (B.S.C. No.61 or M.E.S.C. No.23) or Portland Stone (B.S.C. No.64 or M.E.S.C. No.11), according to supplies available.

2. One disruptive colour may be used to complete the camouflage scheme. For the present the only vehicles in the A.I.F to which the disruptive colour will be applied are those operating under command of 1 Aust. Corps.



Sherman Mark IIIs (M4A2) of 'C' Squadron the Queen's Bays, 2nd Armoured Brigade, 1st Armoured Division camouflaged according to Drawing A/142/1. The white under bow painting is visible on the first tank – but not on the next in line. (IWM)

3. Full details as to the method of painting are contained in A.I.F. (M.E) Mechanization Instruction No.80, of 8th January 1942.

The intention of this order was that each Command Area, e.g. Palestine, Iraq, Malta and so on would adopt one disruptive colour and pattern suitable for the area and apply it over Light Stone No.610 or Portland Stone 64. In practice this did not turn out quite as intended. Although this policy remained in force until October 1942, the effect of it remained on all types of equipment, but slowly diminishing evidence, throughout the remainder of the North African campaign. With the adoption of this new policy, G.O.s No.297/1940 and No.795/1941 (the 'Caunter Scheme') were thereby cancelled.

In accordance with this order, the very first Shermans through workshops were painted Light Stone 61 and no disruptive colour was applied. The regiments of 2nd Armoured Brigade were some of the first to receive Shermans and very few photographs of these early Shermans show any sort of unit-applied disruptive painting, but there is one on which an irregular undulating light line may be seen along the side. Authors disagree about this; on one hand this is thought to be a complete scheme with a darker colour below the line whilst others are of the opinion that only the line exists and the camouflage squad detailed for the work either had no chance to finish, or progress was stopped by the introduction of later orders.

A Fundamental Change

A Camouflage Directorate at GHQ MEF Cairo, produced a document entitled, 'NOTES ON VEHICLE PAINTING' (T.N.A file WO201/ 2846), regarding camouflage painting. Although undated, it was probably written about August or September 1942 and contained a summary of previous camouflage policies and colours including the following observations.

By early 1942 the authority for commanders to apply their own disruptive pattern had degenerated to the point where sub-formations down to brigade level were designing and applying their own private patterns to their equipment and vehicles. The adverse effect of this painting was twofold. Many of the colours and disruptive designs had little or no camouflage effect. More seriously they provided the enemy with a useful additional means of identifying our units and piecing together our Order of Battle. This last was, of course, most prejudicial to security.

Ongoing discussion and experiments of a number of practical matters and field trials indicated that a 'universal basic colour, a kind of earthy pink' and a disruptive colour of 'dark olive green' would be the most suitable colours for general use. The trials also indicated that only certain classes of vehicles would justify the expense of time, labour and paint as a possible protection in ground view. Disruptively painting the enormous number of 'B' vehicles that had little individual value tactically was not justified.

As a result of the Directorate's assessment immediate steps were, therefore, taken to standardize the policy and practice of camouflage painting of vehicles and equipment throughout the whole of Middle East Forces. One of the main tenets of disruptive painting, that no two vehicles within a unit should carry a similar disruptive design, was now discarded. Under the new policy in future, all vehicles of the same type or class would carry an identical disruptive design.

To affect this, a new G.O. of 6th October 1942, the first of two issued at closely dated intervals, cancelled G.O. No.1272 of 1941 and 'all Instructions or Directives on the policy of Camouflage Painting issued by GHQ. MEF or subordinate HQs thereof before the date of this order'. Issued under CRME/42279/G(CAM), 6th October 1942 paragraph 3 below, specified the colour details, and provided disruptive designs for a range of particular vehicles that included the Sherman tank.

Instructions on Camouflage Painting On AFVs, Jeeps & Trucks

3. (a) The BASIC COLOUR common to whole of MEF is designated 'DESERT PINK - No. Z.I.' Approved samples of the Colour and tone are held as controls by OS and the Camouflage Directorate.

(b) The Disruptive Pattern will be in Dark Green, designated 'DARK GREEN - No.PFI.' If Dark Green is not available, Black, Very Dark Brown or Dark Slate may be used.

(c) All paints will be as Matt in finish as possible.

(d) The Disruptive patterns will be as laid down in diagrams to be issued by the Camouflage Directorate to OS under the same reference as this GO.

In line with the new policy, further instructions on 17th October 1942, and new diagrams were soon issued under CRME/42497/G (Cam) 19th October 1942. This order cancelled the 6th October designs, but NOT the colours and at least 10 disruptive drawings were issued for class or individual vehicle types, A/142/1 Sherman among them. It is speculated that the /1 suffix on this and some other drawings may indicate that these are replacement drawings for the earlier issues. On the whole, the instructions paraphrased below were closely followed. The instruction of 19th October was ratified as G.O.1650 of December 1942.

Instructions on Camouflage Painting On AFVs, Jeeps & Trucks

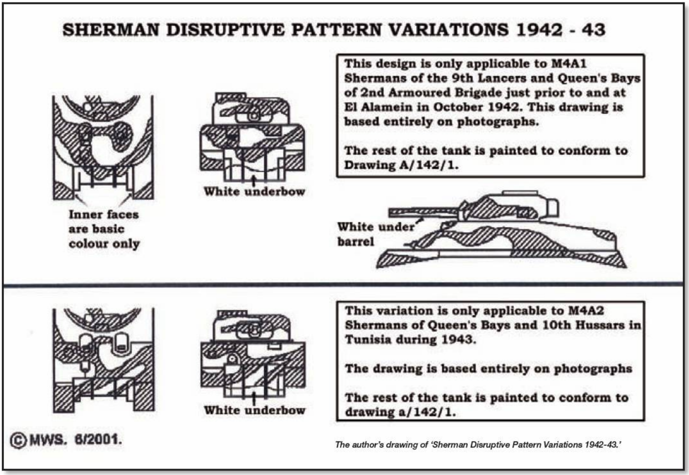
1. These instructions and designs cancel those previously issued under CRME/ 42279/ G (CAM) of 6th October 42.

2. The aim of the pattern is to hinder quick and accurate identification of the various types of Fighting Vehicle, to hinder accurate fire on known vulnerable parts, and to assist concealment on such favourable ground as Ghots and broken ground.

3. The dominating lines of the desert are horizontal. Anything vertical is conspicuous. Therefore the ***DISRUPTIVE PATTERN MUST BE GENTLY OBLIQUE OR HORIZONTAL***. It must *NEVER* run up and down vertically. *(Their emphasis)*

4. The *DARK* patterning is designed to break up hard straight edges and places where sunlight surfaces meet shadowed surfaces. It is also designed to 'swallow up' and distort the hard rectangular black holes that are caused by windows, slots and recessed surfaces.

5. The finished vehicle should show more light basic colour than dark patterning.



SHERMAN DISRUPTIVE PATTERN VARIATIONS 1942 - 43

This design is only applicable to M4A1 Shermans of the 9th Lancers and Queen's Bays of 2nd Armoured Brigade just prior to and at El Alamein in October 1942. This drawing is based entirely on photographs.

The rest of the tank is painted to conform to Drawing A/142/1.

This variation is only applicable to M4A2 Shermans of Queen's Bays and 10th Hussars in Tunisia during 1943.

The drawing is based entirely on photographs

The rest of the tank is painted to conform to drawing a/142/1.

The author's drawing of 'Sherman Disruptive Pattern Variations 1942-43.'

6. If a spray gun is used it is important to spray to a clear-cut edge by any available means. If the edges of the dark patterning are allowed to 'blur off' gradually the object of the pattern will be largely defeated.
7. Certain undercut portions are to be painted *WHITE* to lighten the dead blackness of the shadows. These surfaces are indicated on the diagrams.
8. Start work from the side and front elevations and then carry the pattern over the top.

As may be seen from the drawings, all of these factors were taken into account when the disruptive patterns were designed. There was to be no more of the 'patches where you fancy them' and 'make it up as you go' type of painting.

G.O.1650/1942 remained in force until cancelled in April 1943 when a new scheme specifically for use in the more verdant and duller Tunisian and Sicilian terrain was introduced.

Sherman Disruptive Patterns

The TNA file contains photographs of models of various vehicles with disruptive patterns applied. This strongly suggests that in the initial stages the designs were first tested on models and then developed via trials into suitable patterns. If the pattern filled the criteria then the design would be drawn onto paper from the model and further copies distributed to the appropriate units through normal channels. To lend weight to this theory the full effectiveness of all of the G.O.1650 designs can only be appreciated when they are seen on a three-dimensional object

The First Pattern

This first scrap drawing **(Sherman Disruptive Pattern Variations 1942- 43)** of a disruptive pattern shows that which may have been the original pattern issued on 6th October 1942 and subsequently withdrawn. This drawing has been made by the author based entirely on photographs. The disruptive pattern predominantly resembles the official drawing issued later and shows a design that was only applied to M4A1 Shermans of the 2nd Armoured Brigade's 9th Lancers and Queen's Bays tanks. It can only be identified on photographs taken in late September and early October. Hopefully confirmation might yet be found.

The different and most distinctive feature of this pattern is the long stripe along the left side that continues into a 'V' shaped area across the glacis plate. The patch at the top of the glacis is designed to disguise the hatches and vision slots. Due to reflections and excessive wear it has not been possible to positively define the disruptive areas on the hull front and a good clear picture of this area has yet to be found. From what may be seen, one arm of the 'V' extends through the hull .30cal machine gun housing and connects with the top patch. Rather oddly in the photographs, the inner faces of the track-guards are often not painted with the disruptive colour.

On the gun barrel, its entire top length is dark and few tanks have white on the underside of this. Many of these tanks have all of the suspension units and under hull a dark tone, believed to be the delivery colour of US Olive Drab. Some have the outer faces of the bogie units and wheels light coloured, while the hull behind them remains dark. Otherwise the rest of the design conforms to drawing A/142/1.

There are other photographs of these units in the RAC files, but all of the most useful pictures from this source have already been published. Photographs of this design may be found in the following books:

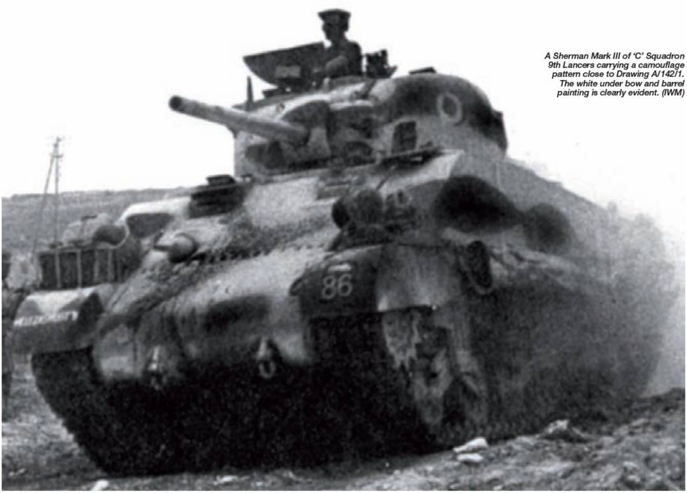
Ref. 3, plates 8 & 10, (The captions have been crossed.)
Ref. 4, page 7 lower left, and page 8.
Ref. 5, page 33.
Ref. 6, page 63 top.
Ref. 8, pages 108, 114 and 127.

The colour of these tanks has in the past been frequently and simply reported as 'sand with black', probably due to the high contrast and grainy reproduction. Closer examination of the 1st Armoured Division's 'rhino' emblem clearly shows that the black background is darker than the disruptive colour. A fairly dark green disruptive paint is therefore the most likely over Light Stone 61.

Main Drawing A/142/1

This was the official drawing issued on 19th October 1942. Although it shows a rather crude presentation of a Sherman, evidently based on the prototype tank, the disruptive pattern here can be clearly identified on numerous photographs of Mark II and Mark III Shermans. Drawing A/142/1 has been scanned and computer cleaned for clarity, but no changes were made to the original format or font.

As with all disruptive drawings of the period, the modeller should bear in mind that one of the criteria states that disruptive colours



A Sherman Mark III of 'C' Squadron 9th Lancers carrying a camouflage pattern close to Drawing A/142/1. The white under bow and barrel painting is clearly evident. (IWM)

should never end at an edge or corner. Instead they should stop short or continue onto an adjacent surface and finish with an irregular demarcation line. The drawing need not be slavishly followed. Simply maintain the correct start and end points, general shape of the areas and proportions. You will see numerous small variations on photographs.

The patterning conforms to the required criteria, so that when parked in suitable locations the patterning would help to merge the vehicle with its surroundings. With Shermans only the gun barrel and under bow, were considered worth counter-shading in pure white, (counter-shadowing is more correct). While the Directorate accepted that in the light of experience counter-shading might be not worth the effort, these white areas may be seen on almost every photograph of Shermans with this pattern. Only a small selection of photographs is listed.

Ref. 1, page 111 top and bottom.

Ref. 3, plate 6, a well-worn example, this might be Slate over Desert Pink or Light Stone No.61. Plates 16, 17, 35 and 37 all appear to be standard pattern.

Ref. 6, page 63 bottom. Again this shows a HQ unit with M3 Lees in the background. This might be the same unit as the one above.

Ref. 8, page 110. Possibly a HQ unit, note the M3 Lees with twin aerials mounted on the hull roof. These Lees carry the same disruptive pattern as issued for the M3 Grant tank in October 1942.

A/142/1 Variant

The last scrap drawing shows a variation of A/142/1. This can only be seen on Shermans used by the 2nd Armoured Brigade and applied to M4A2 Sherman IIIs of the Queen's Bays and 10th Royal Hussars. This variation exactly matches the official drawing with the exception that across the glacis plate there are now two diagonal bands, which are narrower and the lower one is raised considerably to clear the transmission bulge; 2nd Armoured Brigade was evidently determined to show some independence. The colours seen on the photographs generally show green over Desert Pink, which gives a high contrast in pictures. Photographs of this variant may be found in the following books.

Ref. 1, page 152.

Ref. 2, plates 130 & 133.

Ref. 9, page 137.

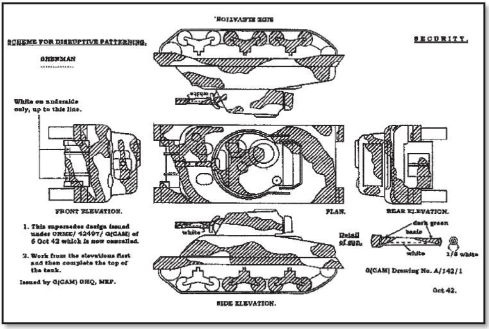
The October disruptive painting order specifically applied only to new and repaired equipment, prior to this numbers of tanks had already only been finished with a basic colour, either Light Stone No.61 or Desert Pink. Some repaired tanks simply had the correct disruptive design applied just before re-issue whereas others did not This may have occurred due to a number of reasons, the most likely being the shortage of Desert Pink and Dark Green or because of insufficient time and materials to comply fully with the order. Some of these Shermans retained these colours for a considerable time, a few until the end of the campaign in North Africa.

One noteworthy feature of tactical markings appears at this time on Shermans, Grants and Crusaders too. You may see on photographs that the disruptive colour is often not applied inside the squadron signs painted on the turret. This is because the camouflage squads detailed for the work of adding the disrupter to already issued tanks did not bother to carry out any tricky paintwork, they simply skirted the marking.

Shermans in Sicily and Italy

By 1943 the Sherman tank had been selected as the main battle tank for British and Commonwealth forces. Although it had its faults there was much development potential and it was readily available in large numbers. By March of 1943 the 8th Army had fought its way from Egypt to Tunisia. Coming from Britain and having landed the previous November for Operation *Torch*, the 1st Army's 26th Armoured Brigade had Valentine and Crusader tanks in its inventory. By mid-March these were being replaced by Sherman tanks and had moved into Tunisia from the west.

Both armies were equipped with vehicles camouflaged according to the instructions current in their respective theatres up to that date. In broad terms, the 8th Army vehicles in North Africa were Light Stone No.51 or Desert Pink basic colour with or without disruptive paintwork. Whilst numbers of 1st Army Shermans seem to have retained their issue colour of US Olive Drab No.9 there is good photographic evidence dated March 1943 that quite a number of 1st Army Sherman tanks had been hurriedly repainted a lighter colour with a variety of dark spotted or striped patterning over that. What this colour may have been has been open to much conjecture in the past, but it is my contention based on tonal values and army orders practice that the lighter colour was probably light Mud that was called for in the written April 1943 orders.


SCHEME FOR DISRUPTIVE PATTERNING.
SHERMAN
SIDE ELEVATION.
SECURITY.
white
White on underside only, up to this line.
FRONT ELEVATION.
PLAN.
REAR ELEVATION.
1. This supersedes design issued under CRME/ 42497/ G(CAM) of 6 Oct 42 which is now cancelled.
2. Work from the elevations first and then complete the top of the tank.
Issued by G(CAM) GHQ, MEF.
white
Detail of gun.
dark green
basic
white
1/3 white
G(CAM) Drawing No. A/142/1
Oct 42.
SIDE ELEVATION.

Drawing No. A/142/1 'Scheme For Disruptive Patterning Sherman' dated October 1942.

Whilst the UK applied schemes were effective against the darker soil and verdant terrain of Tunisia, the basic colours applied to 8th Army vehicles were really too light in tone for the landscape. The Middle East Camouflage Directorate had, by early 1943, appreciated that such a circumstance would arise and steps were already in hand to provide a suitable scheme for ongoing operations. In April 1943 a new camouflage scheme more suitable for current and forthcoming operations was promulgated by MEF GHQ, one month prior to the cessation of fighting in Tunisia, and applied almost immediately. A letter dated 10th April 1943 on the subject of 'Vehicle Painting' stated that designs in respect of camouflage painting of Crusader, Sherman and Grant AFVs was attached and that these designs cancelled those of ME GO 1650 of 1942. Insofar as units of 13 Corps were concerned, a disruptive pattern would be applied to all vehicles and 25pdr gun shields. Camouflage painting would be carried out on vehicles before issue from Vehicle Parks and by Mobile REME Paint Spray Teams, which would deal with vehicles already issued to units of 13 Corps. The reader may have noticed that although the dated orders at TNA are for April there seems that, as in 1942, the immediate introduction of a new colour was made by local army order and the written GO simply formalized what had already taken place. This sort of thing was normal in ME administration.

New Instructions

Barely a fortnight later, the 10th April order was followed by yet another order dated 23rd April 1943 under 'Vehicle Painting' with appendix, which formally introduced the new colours, prioritized repainting and carried a distribution list Unfortunately no number for this GO is positively known. The important paragraphs of the order follow.

1. (a) It has been decided by GHQ MEF to discontinue the use of Desert Pink as a basic colour and Dark Green as a colour for disruptive patterning for the painting of vehicles and equipment as laid down in MEGO 1650 of 42.

(b) New colours will shortly be brought into use; these will be 'Light Mud' as basic colour and 'Blue-Black' for disruptive patterning.

(c) The painting policy as laid down in MEGO 1650 of 42 will not be changed.

(d) A new MEGO will shortly be published in relation to this matter.

2. Units will be responsible for painting their own vehicles and equipment. (Vehicles of HQ 13 Corps will be painted by EME Wk/shops).

3. Units will indent for paint and brushes to DADOS 13 Corps. Paint will be indented for on the basis of 1 gallon of 'Light Mud' and 1/2 gallon 'Blue Black' per vehicle, irrespective of size.

4. Designs for disruptive patterning and technical information regarding the painting are attached; these designs will be strictly adhered to.

5. (a) Repainting of vehicles will be carried out in the following order:

(i) Vehicles at present painted light yellow.

(ii) Vehicles at present painted pure 'Desert Pink' as basic colour and/or bright 'Dark Green' for disruptive patterning.

(iii) Vehicles painted other colours.

(iv) Vehicles painted with a mixture of five parts 'Desert Pink' to one part 'Dark Stone' for basic colour and dull 'Dark Green' for disruptive patterning will be dealt with last.

(b) G (Cam) 13 Corps will be informed when all vehicles falling into categories **(i)** **(ii)** and **(iii)** above are completed. NO action will be taken to repaint vehicles painted in category **(iv)** above until further orders are received.

(c) ACVs will not be repainted until further instructions are received.

6. Any information or explanations regarding the designs can be obtained from G (Cam) 13 Corps.

Appendix 13 Corps

Instructions for the repainting of all vehicles and Equipment other than AFVs.

1. Camouflage painting of vehicles will be carried out according to the following instructions.

2. These instructions cancel and supersede all designs for camouflage of vehicles and equipment laid down in MEGO 1650 of 42.

3. The patterns laid down in the attached data sheets will be strictly adhered to.

4. The basic colours are referred to as 'Light Mud' and the applied colour for patterning as 'Blue Black'.

5. If a spray gun is used it is very important to spray the pattern to a CLEAR CUT EDGE by any means available. If the edges of the dark pattern are allowed to 'blur off' the object of the pattern will be largely defeated.

6. Adaptations of these designs (for) vehicles not included in the data sheets should conform as nearly as possible to the most allied type.

An important point is the reference to both 'bright' and 'dull' Dark Green. Evidently there was some hitherto unidentified variation of shade in use. Being a theatre colour this is hardly surprising.

The only photograph that might show **5(iv)** above occurs in *Allied Tanks Italy World War Two, Tanks Illustrated* No.20, plate 11. This is a reversed print and using a mirror the three Shermans at the centre of the picture can be seen to be carrying the '1942 Pattern'; the caption calls it 'North African Scheme'.

The term 'allied type' in appendix section 6 should not be taken in the sense of allied as in British or American, but as a vehicle type most similar in appearance or within the same vehicle class. This actually formalized a practice that had been carried out since October 1942. Photographic evidence shows that later in the campaign turret-less M3A3 Stuarts of 6th South African Armoured Division and M10 3in SPs of the Polish Forces both carried adaptations of the Sherman design in light Mud and perhaps US Olive Drab.

A South African document dated 2nd December 1943, under DOS/9 for 11th Armoured Brigade has short comments regarding camouflage. New Sherman Vs from the USA with low mileage are stripped of kit, overhauled and re-camouflaged before being re-kitted and issued. Although the document does not say so, presumably in accordance with the standard scheme detailed here.

The Disruptive Pattern A/181

This rather crude drawing A/181 was evidently based on the prototype tank, but the pattern can clearly be identified on numerous photographs of Marks II, III, V and Scorpion variants. The drawing is one of 15 consecutively numbered drawings for specific types or class of vehicle. Since it was not suitable for reproduction in its original form, the drawing has been computer cleaned for clarity, but no changes whatever have been made to layout, text or content therein. It is complete with apparent errors, omissions and misalignment of colour demarcations.

This disruptive pattern was carried on Shermans involved in Operation *Husky*, the invasion of Sicily in July 1943 and *Buttress* and *Avalanche* the assault on Italy in September 1943. It was also applied to Shermans of units still under training in Syria, Palestine and North Africa operated by British, Canadian, New Zealand, South African and Polish crews.

Whilst looking at this drawing the reader should again keep in mind that disruptive colours should never end at an edge or corner, but stop short or continue onto an adjacent surface with an irregular demarcation. The pattern is best appreciated when studied on a three-dimensional object. Please note that on the drawing the colour demarcation lines might not exactly align. This may not be entirely draughtsman's error, but a means by which the allowed limits to painted areas can be indicated. Whilst looking at photographs the reader will see numerous detailed variations of demarcation lines, but none of these vary greatly. Two well-known photographs of 'Sheik' of the Royal Scots Greys show a corrupted variant of the pattern, but it is essentially the same. Apparently unique to this unit was the addition of black spots in the Light Mud areas. Several, but not all of the unit's tanks carried this feature and it may have only been used during the early operations in 1943.

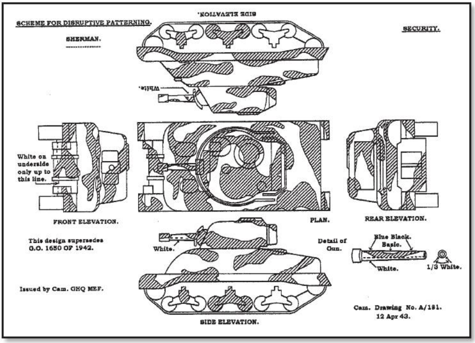
Photographs in the listed references definitely show pattern A/181. Although broadly similar to the desert pattern and obviously in line with the painting policy of MEGO 1650 the disruptive pattern is clearly different.

Photographic examples of the design may be found in *British Tank Markings and Names*, *Tanks Illustrated No.20, Allied Tanks Italy* and Osprey Vanguard No.26, among many others. It is incorrectly captioned in Ref 1, page 105. These are almost certainly 8th Army tanks evidenced by the turret bin type, sand-shields and rails for 'sunshield' fitting. The tanks show signs of recent re-spraying; probably with a green disruptive colour rather than the specified blue-black and no unit signs are present. The clutter of equipment normally stowed on 8th Army tanks is missing. Despite the caption these cannot be 'preparing for action' at least not immediately. The crews seem fairly relaxed; these may be crews at maintenance or gun alignment on a range.

Osprey/Vanguard No.21, plate 15 is a beautiful example of the scheme although incorrectly captioned too. In this there is a rectangle of slightly different tone around the WD number thus indicating a re-spray from a desert colour to Light Mud.

An interesting variation also applies to some Grant tanks that were used as HQ Command tanks and disguised as Sherman tanks with sheet metal and their guns removed; these carried the Sherman pattern. Ref. 10 has two photographs of Grants converted to dummy M4s and Ref. 6 plate 17 has one of 6th South African Armoured Division.

Large numbers of vehicles arrived in Sicily and Italy that had been with 1st Army in Tunisia. There are numerous IWM photographs that clearly show Shermans during the early stages of the Sicilian landings in some definite non-standard two-tone schemes. Some are high contrast light/dark designs, possibly Light Stone or Light Mud and Olive Drab, whilst others are low contrast designs usually of large random patches of unknown colours that might be S.C.C. 2 Brown over Olive Drab. These may well be Shermans of the 26th Armoured Brigade, the only Sherman user in 6th Armoured Division at that time.



Drawing No. A/181. 'Scheme For Disruptive Patterning Sherman' dated 12th April 1943.

A Change Of Basic Colour

In 1944 a change of basic colour was promulgated; S.C.C. 15 Olive Drab was the official designation, although in GHQ ME orders it is referred to as 'Dark Green'. S.C.C. 15 Olive Drab was a new colour formulated in Britain for use in forthcoming operations in North West Europe and elsewhere to avoid the need to repaint US equipment.

Canadian sources mention it as early as 12th January 1944 in a 5th CAD HQ staff letter under 'Camouflage Painting of Vehicles'. This document stated that that the present dark disruptive colour on a light basic colour is no longer effective. Supplies of Olive Drab paint similar *(my emphasis)* to the US Army colour are expected to be available in the spring of 1944 when all vehicles, AFVs and equipments will be uniformly painted this colour. Equipment already painted in the UK. Dark Brown, presumably S.C.C. 2 Brown will not be repainted until repainting is due and necessary. Vehicles and equipment, which need repainting before stocks of Dark Green have been supplied, should conform as closely as possible to the above policy when uniform Dark Green or Dark Brown will be used. The same instructions were issued to 6th South African Armoured Division under 'ROUTINE ORDERS 10 (CMF)' dated 26th June 1944 and similar to the 4th New Zealand Armoured Brigade also June 1944.

The repainting instruction noted that even by June 1944 there were still some vehicles in desert colours, therefore, these must to be repainted as a priority. Those which retained the Light Mud scheme were less important and those equipments in the UK colour scheme according to MPT46/4A of Khaki Green NO.3 (if any) Of S.C.C. 2 Brown with S.C.C. 1A Very Dark Brown or black disruptive could remain so for the time being until due for repaint or lost through natural wastage.

By early 1944 in Italy many Shermans of several units retained US Olive Drab overall, but mixed with others in the official colours, like the South African and Polish forces. The Canadian units appear to have used a mixture of schemes; the official pattern and colours as seen in *British Tank Markings and Names* plate 106 and US Olive Drab basic only, plate 107. During September 1944 The Calgary Regiment applied a design with what appears to be very dark brown elongated patches, sometimes outlined in a lighter colour over US Olive Drab to some of their tanks. From photographs of these, the dark areas may be applied in a manner broadly in line with the British MTP46/4A style of camouflage. By 1945 the Polish Force had their Shermans in both The US and British shades.

The Colours

There has to be a degree of conjecture regarding Light Mud and Dark Green, since no actual samples of these colours have yet been found to allow accurate reproductions to be made. However tonal values and possible similarity to colours in BS.987C 'Camouflage Colours' may be relevant.

Light Mud; Theatre Colour

This is a theatre colour. As no actual sample of Light Mud has yet been found to allow a comparison with standard colours, the author has been obliged to deduce this colour from the available evidence. While each piece of the evidence on its own is not convincing collectively it is persuasive.

Veterans of the period have described this colour variously as 'dirty sand', 'beige', and 'light khaki' and 'greyish yellow'. The Royal Scots Greys diary records their tanks as being 'grey and black'. There is a colour photograph of a Sherman in Sicily carrying this scheme in

The Second Great War Vol.7, facing page 2874, Hammerton series and the Orbis magazine series *World War II*. In the same Hammerton book, facing page 2950, there is a colour photograph that shows a 5.5 in. howitzer in Light Mud with black patterning on top of the barrel and trails. Further, another colour photograph, IWM TR1722, shows the rear of lorry in Sicily or Italy in Light Mud and Black. BS.987C 'Camouflage Colours': 1942 has S.C.C. No.5 that is described in the MTP46/3 document as 'Grey'. In daylight it does, indeed, appear grey with a yellow or brown cast On the basis of the foregoing it seems reasonable for 'Light Mud' to be very close to S.C.C. No.5 since this is the only colour in the camouflage range that matches the photographs and verbal descriptions. On the basis of this the mix provided is not a match to S.C.C. 5, but is slightly lighter and will give the correct appearance on a model.

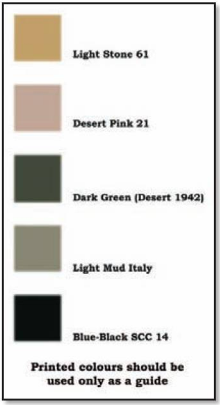
Green; Theatre Colour

When the reader is looking at reference photographs he will have noticed that in a number of cases the contrast between the basic colour and the disrupter is fairly low. This is because despite the orders, some vehicles and AFVs may have been painted in the correct pattern with a green disrupter. Exactly what this green colour is I do not know, but since by the end of the Tunisian campaign many 8th Army vehicles were carrying Dark Green disruptive paintwork then it seems a reasonable deduction that larger amounts of this colour were more readily available than black. This is a theatre colour and may be similar to the Dark Olive Green of desert use. There is also anecdotal evidence from a soldier with the 4th Indian Division who says that their supporting Shermans were 'Very light brown with dark green patches and light green spots'. A similar spotted scheme may be seen with the Royal Scots Greys in *British Tank Markings and Names* plate 135 and Profile Book 2, page 39 where the scheme is described as 'grey with green patches and black spots'. There must have been a degree of variation in the actual colour used. The colour mix provided is, therefore, provisional and a lighter version may be used by reversing the proportions.

US. Army Olive Drab No.9

Numbers of Shermans and other US supplied vehicles remained in their original US Army Olive Drab overall. It is just possible that in some cases this colour may have been retained as the disrupter when light Mud was applied.

We are on safer ground with two other colours used in this theatre, these appear in BS.987C: 1942, 'Camouflage Colours' paints for which were originally introduced during 1941 in the U.K. These were specifically produced for all camouflage purposes on vehicles and ground installations. Colours from this document were specified in War Office ACIs; reference to these colours is usually as Standard Camouflage Colour shade number (S.C.C.). Unfortunately names were never allocated to the original eleven colours, a constant source of irritation and confusion ever since.



Examples of the colours described in the text are included here only as a guide. These printed colour chips are only representative of the colours and should not be used as a reference for exact colour mixing.

S.C.C. 14 Blue-Black

No confusion with this colour, S.C.C. No.14, Blue-Black is exactly that. Do not use pure matt black paint it is much too strong.

S.C.C. 15 Olive Drab

This was the first named colour in the series. This colour was introduced in the UK as the new basic colour in A.C.I. 533 of April 1944 to avoid repainting U.S. equipment, but it as certainly available for use before that date. Considering that priority was given to the N.W. European campaign then the introduction of this colour into the inventories of Italian based units was only slightly delayed, as seen from the orders. This repainting did not include British Bailey type bridges that remained S.C.C. 2 Brown to distinguish components from American items.

I do not claim that the mixes below are a 100% match to the actual colour samples where known. They are, however, very dose approximations to the specified standard and adequately reproduce their original appearance. The colour samples represent the true colour and should be lightened by the addition of a 1/6 proportion of Humbrol 64 Grey rather than white for scale colour effect on models. Now that White Ensign Models (WEM) has released some British colours these may be used now to avoid the need for mixing.

Light Stone No.61
8 x Humbrol 74 Linen
1 x Humbrol 26 Khaki
or WEM ARB 11 Light Stone
Desert Pink ZI
4 x Humbrol 34 White
1 x Humbrol 118 US Tan.
or WEM ARB 13 Desert Pink
Light Mud (Provisional)
6 x Humbrol 187 Sand.
1 x Humbrol 31 Slate Grey
1 x Humbrol 34 White
or WEM ARB 17 Light Mud
S.C.C. 14 Blue-Black
4 X Humbrol 33 Black
1 x Humbrol 67 Tank Grey
Or Revell 9 Anthracite Grey only
Or WEM ARB 16 Blue-Black.
Dark Olive Green (Provisional)
2 x Humbrol 116 US Dark Green
1 x Humbrol 150 Forest Green
or WEM ARB 18 Dark Green
S.C.C. No.15 Olive Drab
5 x Humbrol 150 Forest Green
5 x Humbrol 159 Khaki Drab
2 x Humbrol 33 Black
or WEM ARB 19 Olive Drab
US Army Olive Drab No.9
1 x Revell 42 + 1 x Humbrol 155
or WEM USAR 03 Olive Drab.
S.C.C. 15
For something quicker and faded on a model then 8 x Humbrol 159 and 1 x Humbrol 33 will do.

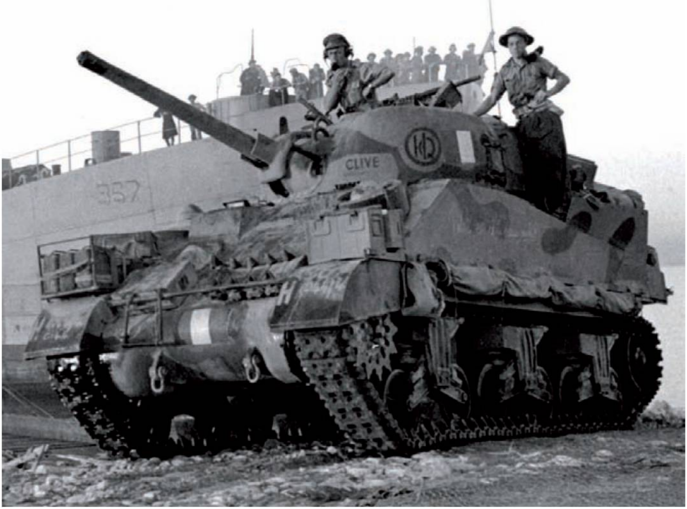
A Modelling Note

To anyone contemplating applying these designs to models I would recommend following points 6 and 8 of the 1942 instruction since they are equally valid when painting any model of this period and theatre. A hard edge is preferable, therefore you should apply any disruptive design by brush or brush paint the edges after spraying the larger areas. When applying the disruptive paintwork, try to 'close' your vision down to only one aspect of your model at a time rather than seeing it as an overall object, the result is well worth the effort. The designs need not be slavishly followed, simply rover the same areas in broadly the same shape. Mixes using Humbrol and Revell paints are provided, but the colours should be weathered accordingly since they are based on new samples wherever possible. Once all the markings have been applied a coat of matt varnish should be applied and then a coat of dust if you want an authentic miniature.

Markings

A number of recent fine publications by Hodges and Taylor, Jeff Plowman and Don Dingwall have covered the complex use of divisional and Arm of Service (AoS) markings of the British and Commonwealth Forces. The Poles have been covered by recent publications from Eastern Europe so we need not dwell on them here. However, there are some mandatory markings, which must be mentioned and applied to models representing this theatre.

In addition to their various unit and individual identification markings there are two markings that were mandatory for vehicles, including AFVs. This first marking was carried over from a June 1942 instruction to 8th Army in the Western Desert. All vehicles were to carry an Air Recognition



Sherman III of HQ 'C' Squadron 3rd County of London Yeomanry sports a camouflage pattern following that ordered in Drawing A/181. Barely visible is the light coloured patch under the bow, but the red/white/red recognition signs are very prominent on bow and turret side. (IWM NA4264)

Sign on a horizontal surface. This new sign was to be a roundel, 2 feet 7 inches radius, with a central red disc of 10 inches diameter and blue and white rings each of 10 inches width together with an outer yellow ring 6 inches wide. Where the vehicle to which this mark was to be applied was too small for this optimum size, then it should be painted as large as possible and in the same ratios. This marking was intended to be applied to a permanent surface such as a roof, bonnet or hull top but not on canvas. The marking can also be seen without the yellow surround. On Sherman tanks the roundel was frequently applied to the rear hull decking and later the turret top adjacent to the cupola. The marking might also have been applied to equipments of 1st Army when its units were absorbed into 8th Army, but this is uncertain. It is also at present uncertain when use of this roundel was discontinued. However, it has been stated elsewhere that this might have been slowly phased out throughout the later part of 1943 into 1944 when it was replaced by a white star.

As early as March 1942 in Britain, a Royal Armoured Corps flash was introduced to be applied to AFVs. This consisted of a red/white/red rectangle 18 inches wide and 10 inches high. This flash was to be carried centrally on both sides of the hull or turret, and on the front and rear of the hull or auxiliary fuel tank. The marking continued in use only by 1st Army armoured units in Tunisia during 1942 and 1943. It remained in use into Sicily and Italy when adopted by 8th Army and Commonwealth units there. As time went on in Italy, this flash became smaller and less conspicuous, sometimes not carried on the front or rear of an AFV. A perusal of photographs will show a range of locations throughout the campaign. This marking was not to be carried on the roof.

From the War Diary of the 2nd Canadian Infantry Division dated 16th April 1944 is an instruction for the application of 'Recognition Markings; White stars, five-pointed.' This recognition marking was to be carried on all 'A' and 'B' vehicles and SP guns excepting RAF and vehicles marked with the Geneva cross (ambulances). All armoured and the above vehicles will carry the star as large as possible on the top horizontal surface with a circular surround 4 inches wide. This was not to be carried on the sides of AFVs and the present AFV recognition marking of a red/white/red flash was to be discontinued.

6 S.A. ARM'D. DIV ROUTINE ORDER 563 dated 30th June 1944. VEHICLE MARKING
With effect 30th June 1944 one large five-pointed star surrounded by an 8 inch white circle on a dark background painted on a horizontal or near horizontal surface, will be adopted as the standard vehicle marking for all British vehicles other than ambulances, in the Mediterranean Theatre.

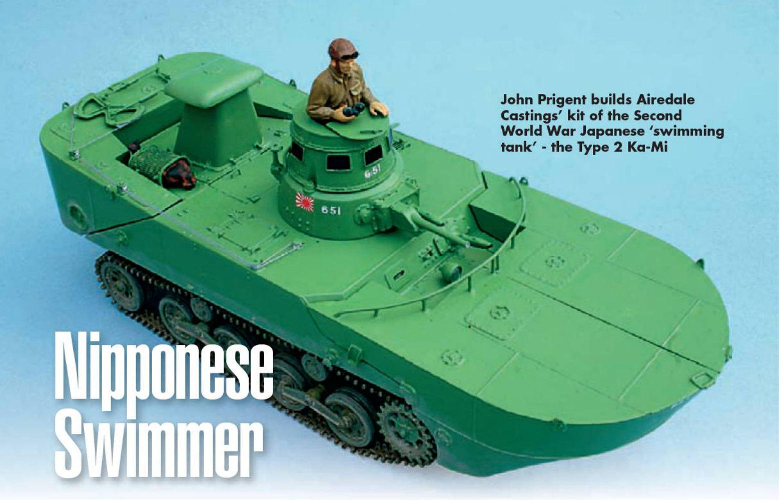
Using the foregoing notes and diagrams the Sherman modeller can now produce something painted in other than the ubiquitous Olive Drab of American origin. Let us see them on the tables at shows, don't be shy, have a go! ■

Photographic References in Text

1. Fletcher, D. *Tanks in Camera 1940-1943*. Sutton Publishing.
2. White, B.T. *British Tank Markings and Names*. Arms & Armour Press.
3. Perrett, B. *Allied Tanks in North Africa. Tanks Illustrated* No. 21.
4. Sandars, J. *The Sherman Tank in British Service*. Osprey Vanguard No.15.
5. Barbarski, K. *Polish Armour 1939-45*. Osprey Vanguard No.30.
6. Perrett, B. *Allied Tanks in Italy World War Two. Tanks Illustrated* No.20.
7. Plowman, J & Thomas M. *4th New Zealand Armoured Brigade in Italy*. Plowman, Christchurch 2000.
8. Buffetaut, Y. *Debarquement en Sicile. Collection hors-série Militaria* No.33.
9. Buffetaut, Y. *L'ete 1943 (2) Objectif Messine! Collection hors-série Militaria* No.36. (Although French text, these have some good photographs, but most of the artwork for British equipment is inaccurate.)
10. *AFV News* Vol.11 No.4 Two photographs of Grant converted to dummy M4.
11. Crow, D. AFV *Profile Book 2*. Page 78.
12. Chamberlain & Ellis. *Sherman and Churchill Specials*. AFV Profile 20.
13. Chamberlain & Ellis. *British and American Tanks*. Arms & Armour Press.
14. Fletcher, D. *The Universal Tank* Part 2. HMSO.
15. File WO 204/7964. TNA Kew.

Nipponese Swimmer

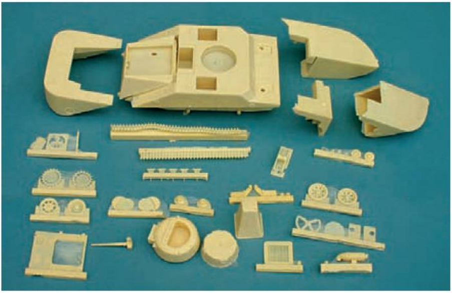
John Prigent builds Airedale Castings' kit of the Second World War Japanese 'swimming tank' - the Type 2 Ka-Mi



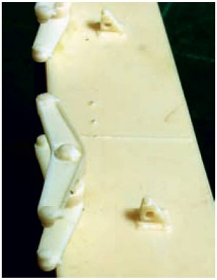
Japan had begun experiments in the early 1930s, after buying examples of the Christie and Vickers Carden-Loyd floating tanks, but the first designs were unacceptable. It was only when the Imperial Navy began planning for amphibious operations in the Pacific that serious progress was made, with its need for armoured support for its Special Naval Landing Forces being the impetus.

The result was to emerge in 1941 as the Type 2 *Ka-Mi*. Although the departure point for its design was the *Ha-Go* light tank the final result was very different; not just a new, much larger, hull for increased buoyancy, but also noticeable changes to the wheels and tracks as well, of course, as detachable pontoons and the provision of propellers and rudders for water drive and steering. A detachable 'snorkel' tower could be fitted to the engine deck to keep its air intake above water, and that conning tower played the same part for the commander's hatch.

The *Ka-Mi* was thinly armoured, its maximum only 14mm, and its armament was only a 37mm main gun and two 7.7mm machineguns, but it still weighed 9.5 tonnes without its pontoons – which weighed another 3 tonnes themselves. Unlike other Japanese light tanks it had a crew of five men, not just the usual commander, driver and hull gunner, but also a turret gunner and a dedicated mechanic to keep its engine running. The driver carried out all his usual functions on land, but when the *Ka-Mi* was in the water it was mainly steered by its commander through a tiller inside the hull, connected by external cables that ran via rollers on the hull top to the rudder actuators on top of the rear pontoon. The driver was still involved, using his own controls to 'change gear' on the independent drives to



ABOVE: The major cast resin parts and a selection of the smaller ones in Airdale's 1:35 scale Ka-Mi kit. The film seen on some of the latter pieces helps to allow full casting of such delicate items and it comes away easily.



ABOVE: The track lengths and links. Notice the sides of the lengths next to their casting blocks have no track-pin holes so go to the inside when on the model.

the two propellers, increasing speed on one side and slowing the other or stopping one propeller completely to add to the rudders' effect.

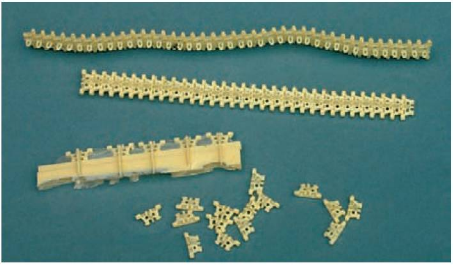
The crew had only three hatches, a single one in the turret and one in each side of the hull top. The hull hatches were unusual in having separate inner and out sections – the inner ones with louvres for ventilation and solid outer ones that could be closed over them while afloat to keep water out.

It is not often realized that there were actually two versions of the *Ka-Mi*. The pontoons were secured by 'claws', operated from inside the tank, which grabbed hooks on them. The initial *Ka-Mi* version had three claws for its front pontoon, one each side of its bow and the third in the centre of the driver's front plate to engage an extension of the pontoon; it therefore seems that the original pontoon was a one-piece item that completely covered the tank's glacis, though definite proof of this has eluded me.

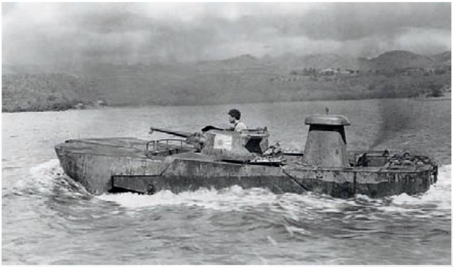
The second type of *Ka-Mi* lacked this central claw and had a cover plate bolted inside its hull to cover the opening, and used a two-part pontoon divided fore-and-aft along its centre; it is not clear how the two halves were secured together. The kit shows this type and includes the two-part pontoon. Most *Ka-Mis* seem to have had the central claw even when used with the two-part pontoon.

Airedale Castings' Kit

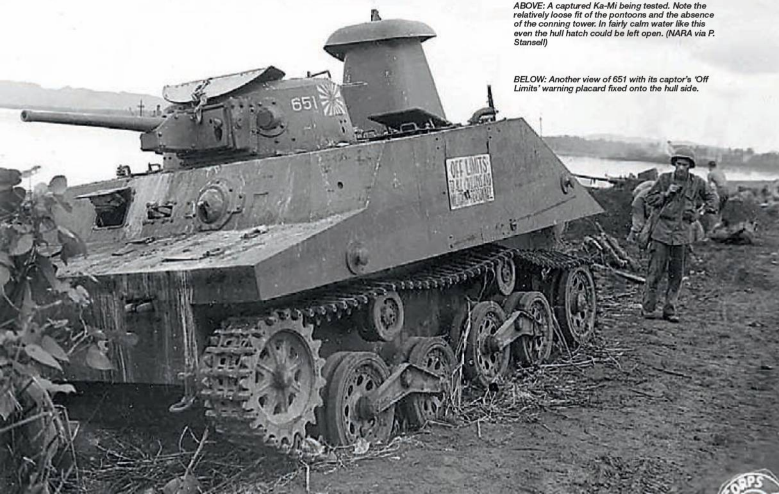
I had wanted to model a *Ka-Mi* for a long time, but it would be no simple matter to modify a *Ha-Go* kit so when Airedale Castings announced their kit I rushed to place an order. It duly arrived, mine being the version complete with pontoons, snorkel and



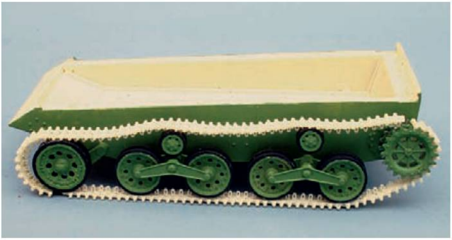
ABOVE: How the return roller fits. The triangular return roller mounts are a bit confusing, but they should fit this way up.



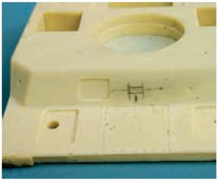
ABOVE: A captured Ka-Mi being tested. Note the relatively loose fit of the pontoons and the absence of the conning tower. In fairly calm water like this even the hull hatch could be left open. (NARA via P. Stansell)



BELOW: Another view of 651 with its captor's 'Off Limits' warning placard fixed onto the hull side.



ABOVE: The tracks in place. My completed track sections for one side, ready to paint. I had already painted the lower hull assembly, but keen eyes will spot that I had missed fitting the sprocket hubs so had to add them later.



ABOVE: Position for the front claw marked. To position this I marked a centre line and then drew a line across from the locating holes for the hull machine gun. A Micro Chisel was ideal for making its recess.

that conning tower – the kit can also be had without those parts.

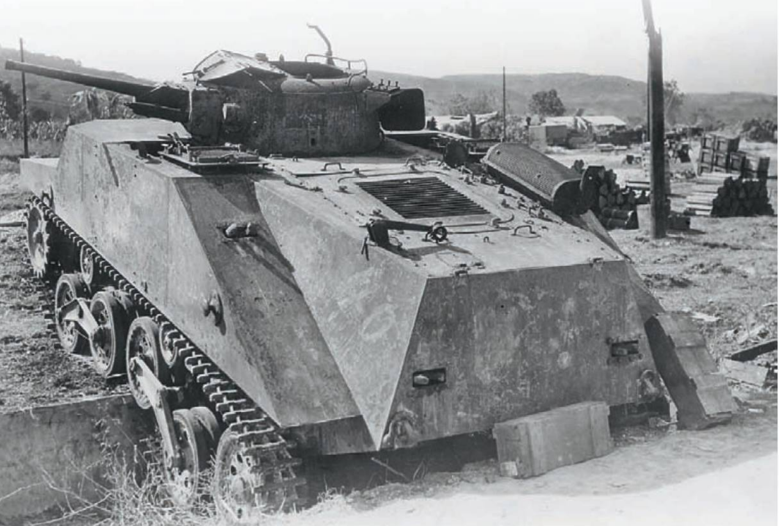
Everything provided is in a good-quality resin; even the grab handles and other separate tiny parts. Cunning layout of the casting blocks allows even these to be separated without damage, leaving clean parts that are far better than those found in polystyrene kits – for example, there's no moulding seam on the grab handles so no risk of breaking them while trying to clean one off them. The instructions come both on paper and as a CD, a very handy thing to have because it's possible to grab the photos from it and enlarge them on your computer if you can't quite make out where to fit some of the small parts. It is essential to study the instructions carefully and identify all the parts and where they go, because some of them aren't identified with their numbers in the photographs at the point where they should be fitted. Since there's no illustrated parts list it is best to only remove the parts from their casting blocks and clean them up when you actually need them

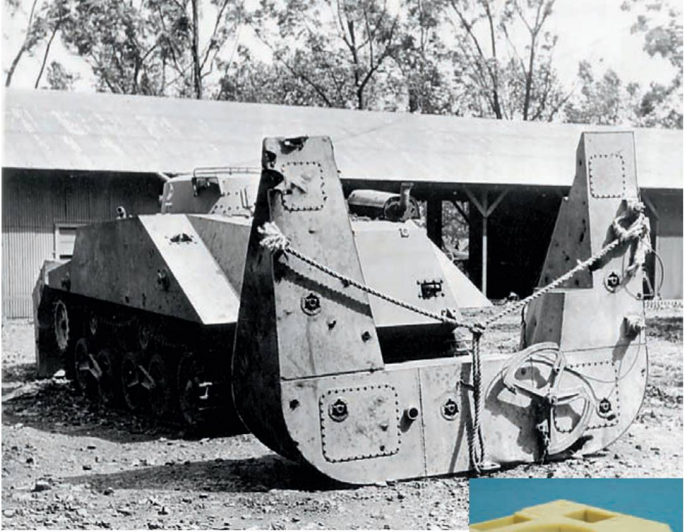
There is one omission, the silencer's mesh heat shield that would be impossible to produce in resin. Airedale very sensibly leaves modellers to produce their own from etched metal mesh instead of 'faking it' by casting the mesh onto the silencer like some older polystyrene kits. There are also some optional tweaks that can be made, which I'll describe as I go through the build.

Lower Hull and Running Gear

I began as usual with the upper and lower hull. Even these large parts, like all the others, had minimal casting scars that were very easy to clean up. After checking their fit together I put the upper hull aside for later to work on the lower section. I added the suspension, return rollers and roadwheels first, and then the idler bump stop part 11 (which is shown on page 5 of the instructions) and the idlers themselves. Their mounts are a push-fit into the hull, so you can make sure that everything lines up with the roadwheels before applying the super glue, which is very convenient! The final drive casings come next, but not the sprockets because these need to be

BELOW: This rear view shows that the antiaircraft machine gun mount was on the bracket on the right side of the turret, not on the turret top. It is still not know what the mount in that place was used for. Note that the silencer heat shield did not come down to the hull top on this side.





ABOVE: The rear pontoon of this Ka-Mi provides a clear view of its deck. The steering arm for the port rudder is missing, so the disconnected X-shaped steering connection has been left to flop.

fitted at the same time as the track.

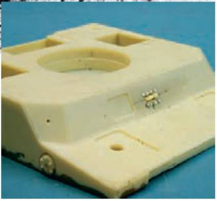
I didn't fancy trying to paint the suspension and tracks with the hull top fitted, so I skipped ahead to page 4 and dealt with the tracks at this point. These come as handed top and bottom lengths for each side, with the top sections already provided with the necessary sag – which is why the sprockets can't be fitted before the tracks if you want their teeth to engage the tracks properly.

Take care to get these handed lengths on the right sides of the tank! They aren't marked as left and right, but are easy to tell apart – just look for the holes of the inset track pins, which go on the outside of each track. I found them very easy to remove from their casting blocks without damage by working in two stages: first cutting away the support 'pillars' that come from their casting blocks toward the track horns, then cutting the lengths from the blocks. Individual links are provided to go round the sprockets and idlers, and were easy to remove cleanly from their blocks with the same method. They aren't handed, both sides having the inset track pin holes, and even have 'pips' to fit into locating holes on each other. This doesn't mean that they need no super glue to keep them together, but it does make life a lot easier because you can (as I did) make up the separate sections to fit where they were to go and then super glue them into four solid runs with their respective top and bottom sections. I was pleased to find that Airedale provides 'spare' track guide horns for use if any of those on the lengths and links have not cast cleanly, but I didn't need to use any of them – a tribute to the engineering of the masters and the casting quality!

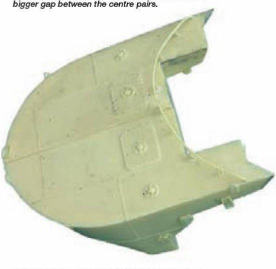
While making the front separate sections I clipped the inner sprocket halves into their holes in the final drives and made sure that they were engaging the track properly, then super glued them into place and added their outer halves with the same precautions. Not noted in the instructions, which is why I nearly forgot them completely, are the small sprocket hubcaps, parts 56, which need to go on now.

Topsides

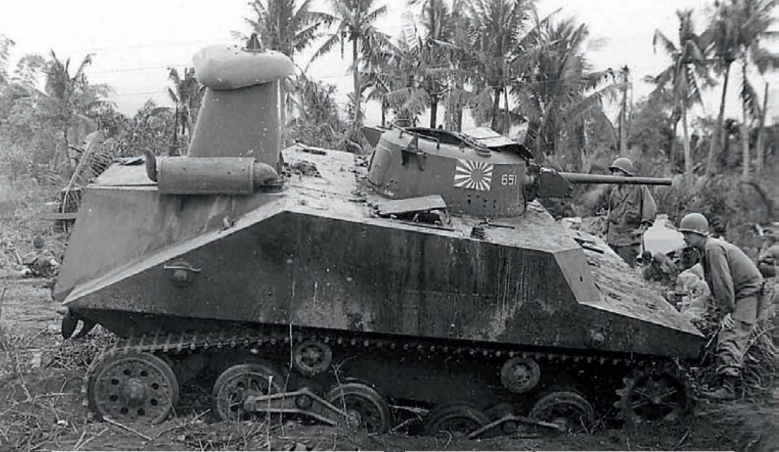
With all this done I painted and weathered the tracks, suspension, wheels and lower hull sides as well as the bottoms of the upper hull's sponsons. The upper and lower hulls could now be fixed together and the rear deck added, and they all fitted very well. At this point I rechecked my references for photographs of the tank I wanted to build, numbered 651 that was operated by the 101st *Kule* Special Naval Landing Force and knocked out after landing at Ormoc on Leyte on 6th January 1945. This one was the first type with an additional 'claw' in the centre of the driver's front plate to support its front pontoon, though actually fitted with the two-part pontoon that did not use that extra claw. Airedale provides the blanking plate fitted

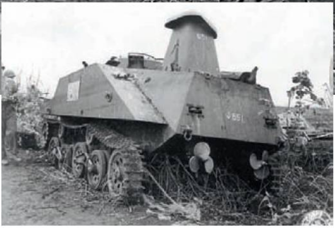


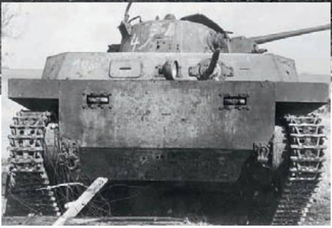
ABOVE: The front claw in place with its bolts added. Note that these are not equally spaced, there's a bigger gap between the centre pairs.



ABOVE: The positions of the fittings on the front pontoon. The grab handles were hinged so I laid one on the deck and let the other one hang down. Like the other fittings around its edge, they have locations marked very lightly so you need to look carefully for the right places.







ABOVE: Here 651 shows its rear markings. The propellers are clearly seen to rotate in opposite directions. ABOVE RIGHT: Another Ka-Mi shows different markings, quite crudely applied. It also shows that the front headlight was carried on tanks that had the central claw in the driver's front plate.

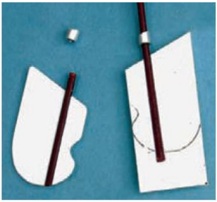
to some *Ka-Mis* in that location, but no extra claw.

Since I was planning to fit the pontoons to my model I simply took a part 28, one of the claws that wasn't going to be used, and chiselled its recess, a slot 4mm wide, 2mm high and 1mm deep. This goes in the centre of the plate from side to side, but not from top to bottom. Like the blanking plate, it should line up with the side extensions of the machine gun ball mount. After fitting the claw I used thin plastic sheet and my hexagon punch and die set to make the eight bolt heads that secured it. Anyone building 651 or one of its sisters that had the claw, but not fitting the pontoons, will need to make an extra claw which should be easy enough to carve from thicker plastic sheet.

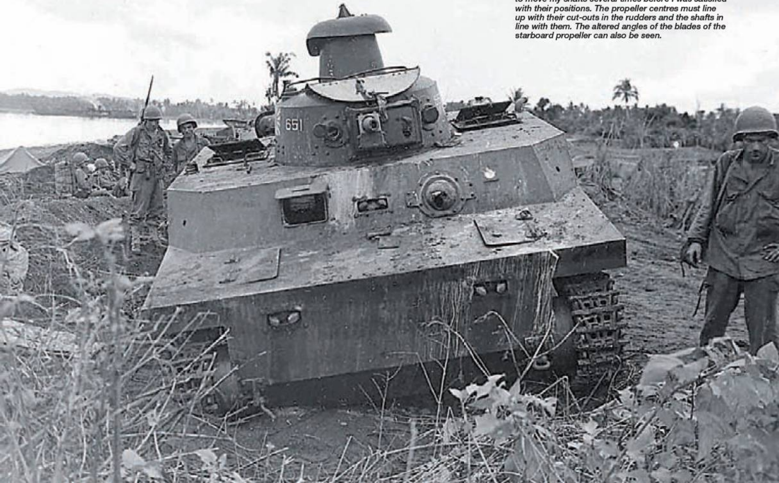
Ka-Mi 651 doesn't show in photographs the front headlight provided by Airedale, but I fitted it anyway. While operating on the front end I added the tow clevis mounts and the clevises themselves as well as the driver's vision port and the front machine gun. Airedale suggests that you cut the end of the latter at an angle to point horizontally, but this would be wrong. Leave it uncut so that the gun is at right angles to the flat of its ball. Two alternative pairs of glacis hatches are provided, one pair with hinges and one pair plain with a hole in each for the front pontoon assembly's locating pins. Make sure you get these the right way round, or the pins won't fit into them.

Now I moved to the back, adding the engine deck fittings. Again there's an alternative, with one 'complete' engine hatch and another modified to accept the snorkel that was used in waterborne operation. The snorkel and hatch clamps are all given as separate tiny parts so they can be added in the correct alignments, clearly set out in the instructions.

Moving back to the centre we come to the



ABOVE: Here are my replacement rudders; one showing how I cut a slot into the over-length card to accept the plastic rod spindle. I cut the bottom to its final shape once the cement had dried and only after the spindle was secure. The lengths were calculated by measuring up from the centres of the cut-outs for the propellers, but keeping the same depth below the cut-outs as the resin rudders. This makes them about 2mm too long for accuracy due to the step between the hull and rear pontoon, but you can keep the resin rudders' length if your pontoon will be shown detached from the tank. Note also the short pieces of aluminium tube that I used to reproduce the collars where the rudders spindles enter the pontoon.



***LEFT AND BELOW:** Ka-Mi 651 of the 'Kule' 101st SNLF being inspected after its capture at Ormoc. It is dirty, but not covered in dents and scratches.*

hull hatches, each in two parts so you can show them fully open, fully sealed, or with the inner louvres visible through the open outer hatch. Both sections are fully detailed, and there are inserts to go under each hatch and keep the closed sections level with the hull top. However, there's no internal detail so if you plan to have a hatch fully open you'll need to add a figure in it. Note, by the way, that the fully open hatch lays right back onto the hull top, but if only the top section is open it stays at the angle shown on my model.

There's also a small bilge pump discharge pipe to add behind the port hatch, and two rollers to be added on the starboard side for the rudders' steering cables. Only one is shown in the instructions to be made with parts 39 and 40; the other has a locating point marked beside the turret, but only uses the roller part 40. The cable, it seems, was wrapped in several turns around this one and held only by friction so that the whole assembly could be jettisoned easily when the rear pontoon was dropped after coming ashore.

Turret

The turret is a very neat casting, with just the guns and a few bits to be added. If you are adding the conning tower take note of the groove cast into one side; this fits around the unidentifiable mount (perhaps for a spotlight?) on the starboard turret side. The grab rail around the turret rear is one of those delicate castings that I mentioned, simply needing a sharp blade slipped around the rim of its casting block to remove it intact, and fitted into locations cast into the turret shell. The conning tower itself is a mystery in one way: there is no trace in photographs of any clamps either on it or on the turret to hold it in place. They must have been actually inside the conning tower, presumably clamping it onto the rim of the turret hatch since there's nothing else on the turret top for them to grip.

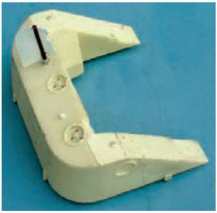
The conning tower had a one-piece hatch, unlike the turret hatch below it, which folded in two to fit inside the conning tower. There's no latch for it in the kit, so I used the turret hatch latch part T9 plus a short piece of T10 to make one. The hatch is correctly given as a semi-circle, but the opening under it should be round; this doesn't matter because a figure in the hatchway hides the shape anyway.

Front Pontoon

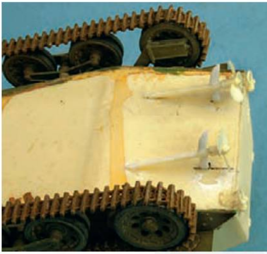
The two main halves of the front pontoon have inserts added to their rears. These fit snugly, but mine were a little too tight so I needed to do a bit of filing for a perfect fit. The resulting joints are not very visible on the completed model, but I decided to fill them anyway. Once this is done you need to join the two halves; slow-setting super glue or epoxy glue is best, applied to one half and the pair joined while upside-down on a flat surface to keep their decks as level as possible. Don't fill the visible joint between them, because it should be there. Once they're set you can add the small parts to their tops and sides.

Rear Pontoon

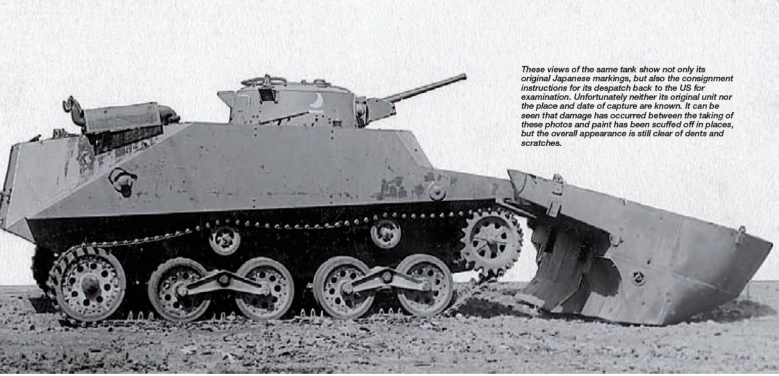
The rear pontoon is a single casting, very well done. Its only problem is that when



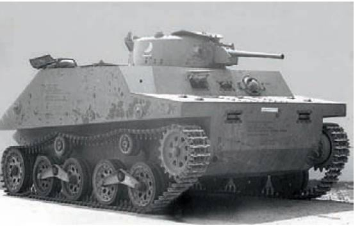
***ABOVE:** Rear pontoon and rudder positions. The rudders need to be moved a little forward from their location holes in the pontoon. Here's one in its new place and the hole for the other left for comparison.*

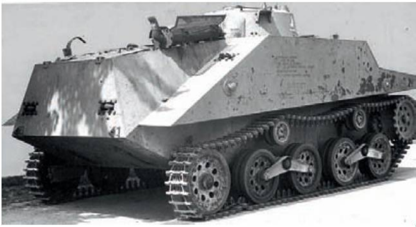


***ABOVE:** Propellers. Here you can see the shape of the propeller shaft supports that need to be added. I had to move my shafts several times before I was satisfied with their positions. The propeller centres must line up with their cut-outs in the rudders and the shafts in line with them. The altered angles of the blades of the starboard propeller can also be seen.*

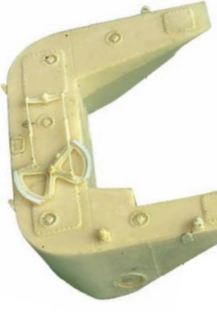


These views of the same tank show not only its original Japanese markings, but also the consignment instructions for its despatch back to the US for examination. Unfortunately neither its original unit nor the place and date of capture are known. It can be seen that damage has occurred between the taking of these photos and paint has been scuffed off in places, but the overall appearance is still clear of dents and scratches.





BELOW: Rear pontoon top deck. This shows the correct angle of the X-shaped steering connection as well as the rims I added to its arms. I also marked in pencil the alignment of the small plugs added to the deck – they should all run fore-and-aft as + (plus) signs, not x.



offered to the hull it leaves a step instead of running as a single slope down to the hull bottom. It, and the hull, both match published plans, but unfortunately these are wrong; the hull sponsons should slope down slightly more and end slightly further back so that the pontoon is a little deeper. Fanatics for absolute accuracy can check the side-view photographs in my references and use plastic sheet to modify the hull and pontoon; in my view the difference is negligible, the step not really being noticeable on the finished model with the pontoon fitted and, of course, not noticeable at all if you display the model on a base with its pontoons dropped after landing.

However, the rudders that go under the pontoon are the wrong shape and need replacing. They should slope at the top to conform to the slope of the pontoon's bottom. Replacements are easily made from plastic sheet, copying the shape of the castings, but adding the slope at the top. For absolute accuracy you can also move the curve of their bottoms so that the deepest part is right at the centre, with the spine just in front of it. The spines themselves are simply added by cutting a slot into each rudder and cementing plastic rod into it.

I actually made my new rudders a bit deeper than the kit parts, so that the cut-outs in them lined up with the propeller hubs, but you may prefer to simplify matters by shortening the propeller shafts so that the hubs can line up with the cut-outs instead of vice versa!

The shaft, whichever you do, need supports at right angles to the hull slope, fitted just in front of the propellers as seen in my photograph. And while mentioning the propellers, I should also say that as cast they are correct for the port side, but the starboard one needs its blades carefully cut off and reattached to rotate in the opposite direction – an easy job that makes quite a difference to the model.

With the underside of the pontoon completed it was time to add its top fittings. All were easy to deal with, but the X-shaped steering connection for the cables is an impossible shape to cast in one piece so has been simplified slightly. Its curved ends should be cable guides, like sections of a bicycle wheel's rim, not flat surfaces. This was another very easy modification, since Airedale includes on the upper surface of the part a line indicating where the rim attached to it. I simply used the part's curve as a template to draw the curve that I needed onto thin plastic sheet, moved it down 2mm and drew again, and repeated the process for three more rim sections. After cutting these out I super glued them to the top and bottom of the part with 1mm overlapping its edge, and the rims were completed. It's worth noting that this part *must* be fitted as shown in the instructions – both its cables need to run to the rearmost roller assembly on the pontoon, so it needs to point in the right direction to let them do so. The photograph in my references showing this area was taken after some GI had been playing with the turnbuckles, the mechanism simply could not work in that position!

I added the cables after painting the model, using grey sewing thread to represent their bare metal because silver thread would be much too bright and shiny. Slipping a thin drill bit between each roller and its housing removed any clogging paint and let me use a single length of thread to run from one arm of the 'X' through all three housings, round the plain roller a couple of times and back through the housings to the 'X'.

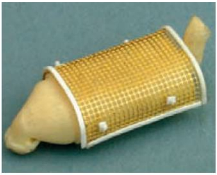
Silencer and Heat Shield

The exhaust silencer needs to go on after the rear pontoon, not because you can't fit the pontoon after it, but because it needs to be moved a little to fit cleanly. Note, by the way, that its separate tail pipe was a separate part on the *Ka-Mi* so doesn't need its joint filled. First it needs its mesh heat shield, which is quite a fine mesh and I found Accurate Armour's D04 square mesh to be perfect for it. Curve a rectangle of mesh 15mm long and 18 mm wide round the shield; the bottom of the outside edge should be level with the hull top and the inside edge higher. Then add its edges, which were simply welded-on metal strip so easily made by super gluing narrow strips of plastic sheet onto each edge. Adjust its fit, with the rear edge just clear of the final exhaust outlet and the front edge just over the front of the silencer – not with the shield centred over the silencer. Add its securing points with little squares of plastic card on the mesh over the silencer's bands, level with the middle of the silencer, and very short bits of plastic rod to depict their bolts. Paint the silencer and mesh separately and fit them to the model so that the assembly just fits inside the rear pontoon.

Colours and Markings

Thanks to Japanese expert Taki's interview with a *Ka-Mi* veteran, it is known that the *Ka-Mis* he had seen were painted with a colour 'like IJN Gaigen No 21'. This is our only definite colour scheme, and being a light green quite similar to shallow water near shore it would be good camouflage before landing, as well as being green enough to be camouflage against foliage. Gunze's lacquer Mr Color SC04 represents this shade, but alas seems only available from Japanese mail order companies in sets with other IJN colours. I ordered a set to use on this model, with the results you see in my photographs. Since then I have learned that White Ensign Models includes Type 21 Camouflage in their WWII Imperial Japanese Navy Colours, so you might prefer to use this instead.

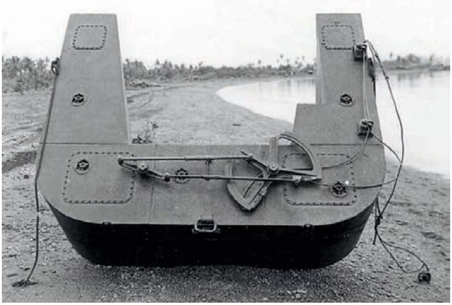
ABOVE: The model ready for paint, but without its pontoons fitted.



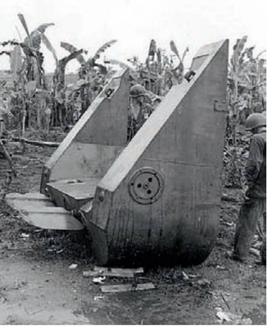
ABOVE: The exhaust silencer and its heat shield. The heat shield is simple to make from square etched mesh and plastic strip and this is how it fits the silencer.

Ready for paint, but here I added the pontoons without fixing them, for a final check that everything was in place.

ABOVE: The front pontoon of 652, apparently also captured at Ormoc.



ABOVE: The rear pontoon of 652 also shows the X-shaped steering connection rather out of alignment, but the way that its cables ran through their rollers can be seen.

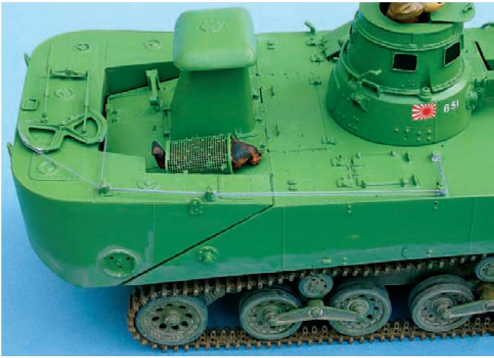


ABOVE: The rear pontoon seen from the side and providing a good view of the rudder shape.

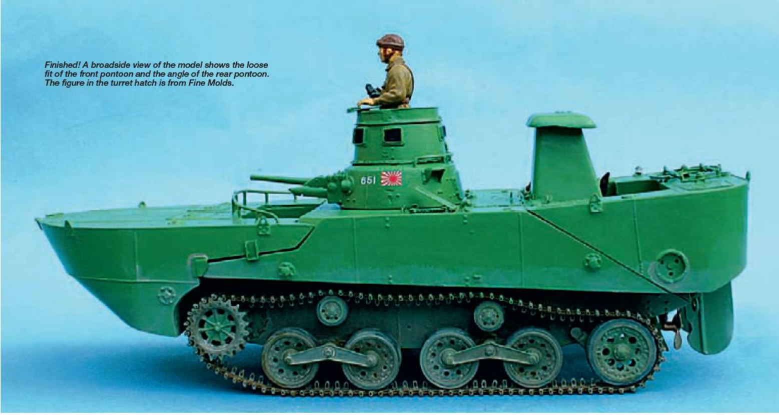
It is noticeable that *Ka-Mi* photographs show no colour differences between the gun and machine guns and the rest of the tank; this leads me to suspect that the whole tank, guns and all, was repainted after every 'swim' to prevent corrosion. This would also account for the relatively unmarked state of the paintwork, with few scratches or chips to be seen. My weathering was, therefore, kept to a minimum, with just the dust thrown up from the earth by the tracks after crossing a beach. I did, though, decide to paint the propellers as 'brassy-bronze' on the assumption that they would not have been painted.

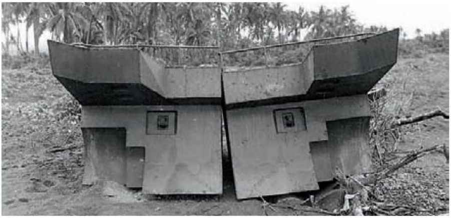
My subject *Ka-Mi* 651 is shown in photographs to have carried her number on her hull rear preceded by an anchor, on both sides of her turret with a 'Rising Sun' flag painted to its rear, and on the rear of the snorkel. Other photographs show that her sister 652 carried her number on both front pontoons, and it seems very likely that 651 would also have done so because the point behind the numbers was to reunite the tank with is detachable equipment after an action. The number would, therefore, almost certainly have been on the conning tower as well, and I applied it to the front because it is not visible anywhere else on the conning tower photograph in my references. My numbers came from a set of 2mm rubdown letters by Letraset, and my flags from the rubdown Japanese armour markings set produced by Ted Dyer. ■

ABOVE: At this point all I had left to do was add the steering cables.



ABOVE: A close-up of the steering cables to show how they run, one above the other, round the roller beside the turret and back to the steering arm.

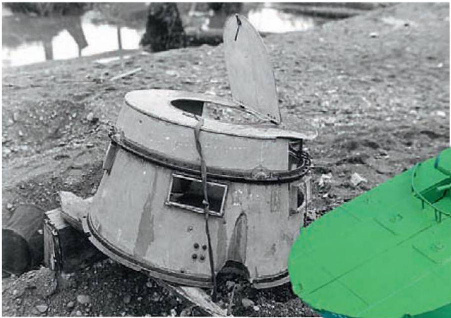

Finished! A broadside view of the model shows the loose fit of the front pontoon and the angle of the rear pontoon. The figure in the turret hatch is from Fine Molds.


ABOVE: A look into the front pontoon from behind shows no sign of anything to hold the two halves together. Presumably the single clamp on each half was found to be enough by itself to keep both halves in place on the tank.

References and Thanks

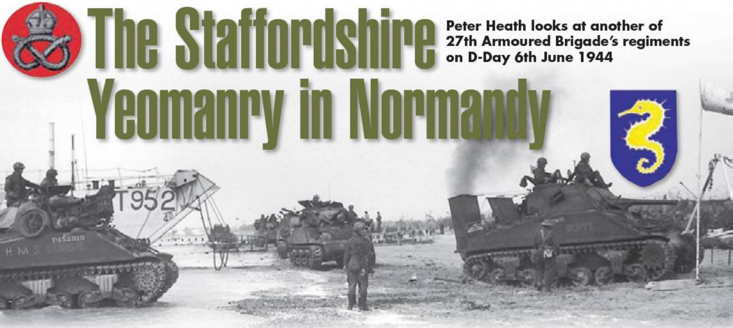
My references are those suggested by Airedale Castings: *Allied-Axis No.6* (Ampersand Publishing, 2002, no ISBN) and *Tankpower 11, Japanese Armor Vol. 3* (AJ-Press, 2003, ISBN 83-7237-128-8). The Allied-Axis title is now out of print, but I am very grateful to Ampersand for providing the illustrations from it that accompany this article.

I cannot close without expressing deep gratitude to both 'Taki' and Al Kelly for their invaluable help in my research into details for this model.


ABOVE: There are no sign of any clamps on the conning tower to hold it onto the tank's turret so presumably they must have been inside it.

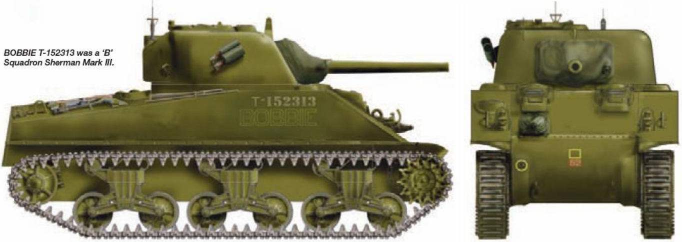
The Staffordshire Yeomanry in Normandy

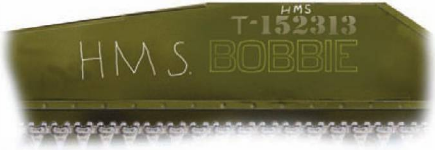
Peter Heath looks at another of 27th Armoured Brigade's regiments on D-Day 6th June 1944



INSET TOP LEFT: Cap badge of the Staffordshire Yeomanry – the famous 'knot' was worn on a red patch on the black beret. INSET TOP RIGHT: The 27th Armoured Brigade insignia; the so-called 'pregnant pilchard'. This version is based heavily on the sleeve insignia and is, therefore, quite detailed. Nevertheless, a similarly detailed version was often reproduced on vehicles within the Brigade – outlined in white on those of the 13th/18th Hussars. ABOVE: Actually this photo is not taken in Normandy; it's from a pre D-Day exercise and may show Staffs Yeomanry tanks from B Squadron. My identification of them as Staffs Yeomanry is, however, speculative, but there is some compelling evidence despite the photo not being specifically listed as depicting Staffs Yeomanry tanks; indeed the IWM caption makes no mention of the unit at all. On the left is BOBBIE (prefixed with a chalked on HMS) with BUNTY on the right. Although the names appear in the style of the Regiment, frustratingly, any other markings are very difficult to make out; the tank in the centre, behind the standing figure, carries a unit sign under what appears to be a triangle in the position where you would expect a Staffs Yeomanry tank to carry these markings. Three bar cleat tracks appear to be fitted (this was common to 27th Armoured Brigade Shermans) as are the turret mounted spare track block holders. BUNTY appears to have the square mid-production head covers of a Sherman III, but once again this is not conclusive. (IWM H38221)

BOBBIE T-152313 was a 'B' Squadron Sherman Mark III.





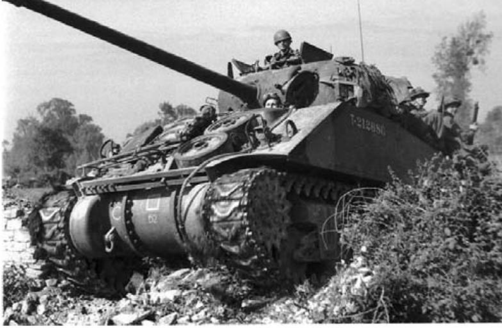
HMS (His Majesty's Ship) markings chalked on the hull of BOBBIE during a UK exercise emphasize the role of these wading tanks being carried by naval vessels.

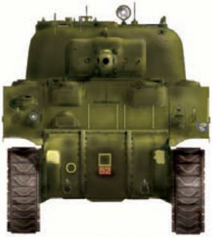
The Staffordshire Yeomanry (Queen's Own Royal Regiment) landed in Normandy on 6th June 1944 at 10:30 hours on White Beach (part of the Sword landing area). They would leave for the UK on 31st July 1944 when 27th Armoured Brigade was disbanded, having taken part in some of the toughest battles of the Normandy Campaign.

The Staffs Yeomanry were old desert 'hands' having seen action in North Africa as part of 8th Armoured Brigade. They had returned to England in November 1943 and by early 1944 had become part of the 27th Armoured Brigade. The Brigade was assembled in the Lossiemouth area of Scotland, with the Staffs Yeomanry being based at Gordonstoun near Elgin. The Regiment was equipped with diesel engined Sherman Mark IIIs (M4A2) with the exception of their Fireflies which would have been the Sherman Mark Vc (M4A4) version (with possibly some Sherman Mark Ic and/or Sherman Mark Ic 'Hybrids').

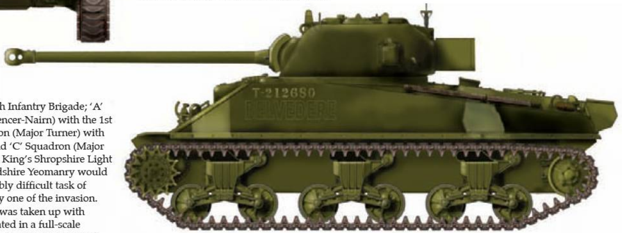
By the end of February 1944 the Regiment's officers and senior NCOs, and indeed the rest of the Brigade, learned their fate. Brigadier G.E. Prior-Palmer, the Brigade Commander, explained that the 27th Armoured Brigade (which included the 13/18th Hussars and the East Riding Yeomanry) were to be one of the assault units for the invasion of Europe. It would land in support of the 3rd Infantry Division with each regiment supporting one of the Division's infantry brigades; the 13/18th Hussars with 8th Infantry Brigade, the Staffs Yeomanry with 185th Infantry Brigade and the East Riding Yeomanry with 9th Infantry Brigade. The Staffs Yeomanry squadrons would each support an infantry

RIGHT: BELVEDERE, one of 'B' Squadron's Sherman Mark Vc Fireflies climbs over the remnants of a stone wall and reveals a full set of markings. The 'B' Squadron square together with the 52 AoS is clearly seen together with the bridge classification (a black figure 33 in a yellow circle). Although not immediately apparent, the Brigade's seahorse insignia is actually carried on the tank's lower left glacis plate. It could be easily missed were it not for the fact that BELVEDERE was filmed whilst manoeuvring through the stone wall (at the same time this still photo was taken) and the seahorse is clearly visible on its blue background. (IWM B7557)





BELVEDERE T-212680 was one of 'B' Squadron's Mark Vc Fireflies. The 27th Armoured Brigade badge was painted – unusually – on the glacis plate. As a Firefly the bridge classification was upped to 33 from the 30 for the rest of the Shermans in the British army in 1944.



battalion within 185th Infantry Brigade; 'A' Squadron (Major Spencer-Nairn) with the 1st Norfolks; 'B' Squadron (Major Turner) with the 2nd Warwicks and 'C' Squadron (Major Griffin) with the 2nd King's Shropshire Light Infantry. The Staffordshire Yeomanry would be given the impossibly difficult task of reaching Caen on day one of the invasion.

Early Spring 1944 was taken up with training that culminated in a full-scale invasion exercise. The next move, in April, was to Hayward's Heath where the laborious task of water proofing all the Regiment's vehicles was done. An inspection, of the whole Brigade, by the King at Petworth followed, and just days later security was tightened and the camp effectively sealed.

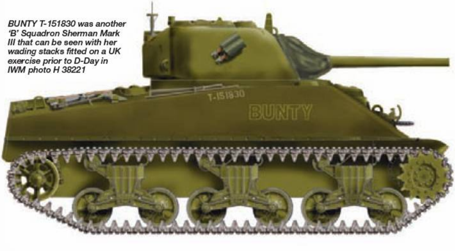
By the night of 3rd June 1944 the Regiment was loaded onto their landing craft and then had to endure the well-known delay whilst the weather cleared. On 5th June 1944 the invasion fleet set sail.

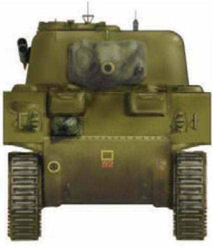
The Staffordshire Yeomanry made a virtually dry landing in Normandy and soon their tanks were spilling onto the beach. Unfortunately, they were not to move far; the beach exits were clogged with vehicles of every description. One exit was apparently being blocked by a crew (not from the Staffs Yeomanry I hasten to add!) who decided to brew up!

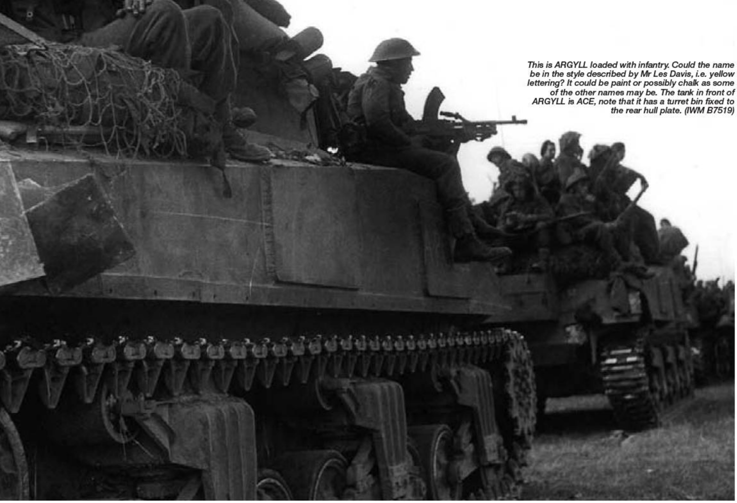
The CO of the 2nd KSLI, however, decided to move off on foot instead of waiting for the tanks. Eventually, after one hour of being stationary and as the exits cleared, the Staffordshire Yeomanry was able to assemble not in its designated area, but at the crossroads south of Hermanville-Sur-Mer. Both 'B' and 'C' Squadrons moved forward with 'A' Squadron in reserve. In the lead 'C' Squadron were to occupy the high ground in the area of Point 61, (i.e. 61 metres above sea level).

So far enemy activity had been light with just light shelling and sniping but this was soon to change. An '88' opened fire on 'B' Squadron, after letting 'C' Squadron pass, and five tanks were quickly knocked out. The Regiment's War Diary states that two fascine tanks, 'two other Sherman III' and a Sherman

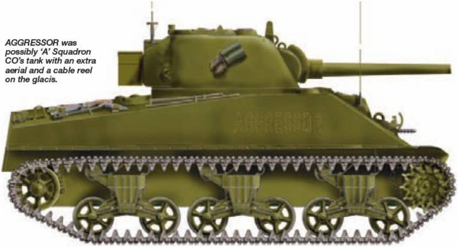
BUNTY T-151830 was another 'B' Squadron Sherman Mark III that can be seen with her wading stacks fitted on a UK exercise prior to D-Day in IWM photo H 38221



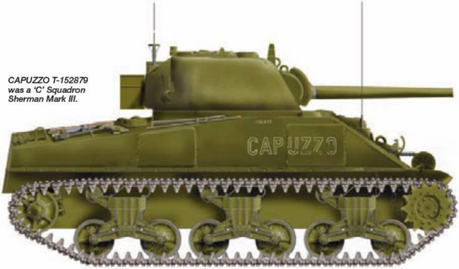




This is ARGYLL loaded with infantry. Could the name be in the style described by Mr Les Davis, i.e. yellow lettering? It could be paint or possibly chalk as some of the other names may be. The tank in front of ARGYLL is ACE, note that it has a turret bin fixed to the rear hull plate. (IWM B7519)



AGGRESSOR was possibly 'A' Squadron CO's tank with an extra aerial and a cable reel on the glacis.



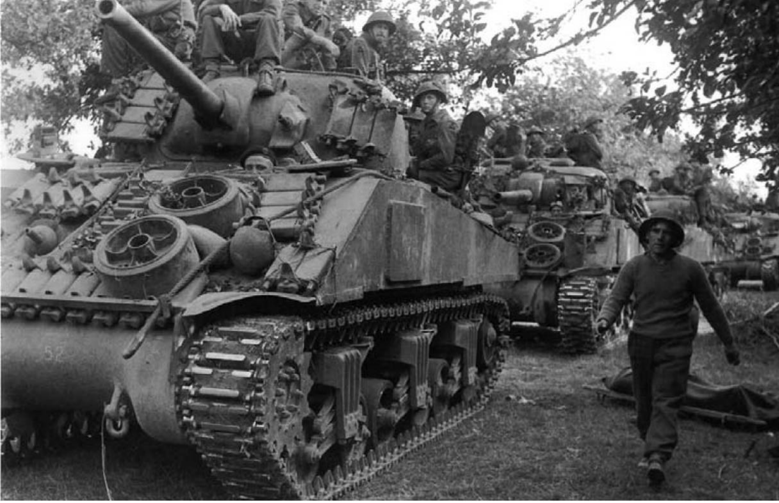
CAPUZZO T-152879 was a 'C' Squadron Sherman Mark III.

V (OP) were knocked out. The fascine tanks were possibly Royal Engineers' AVREs whilst the Sherman V (OP), as there is no mention of the Regiment having any Sherman Vs, could have been a Royal Artillery vehicle. Lieutenant Alexander was killed whilst trying to extricate a crewman from his Troop Corporal's tank, which had been hit. As the Medical Officer's half-track came to assist with the wounded, it too was hit, with the MO (Medical Officer) Captain Harper being thrown clear. 'B' Squadron quickly engaged and silenced the '88'.

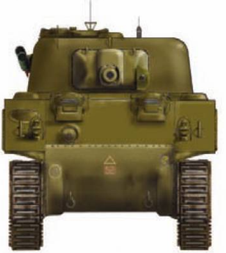
'C' Squadron, however, had by now reached higher ground and with the 2nd KSLI proceeded to take Bieville and Beauville. With 'B' Squadron now finally catching up, 'C' Squadron was able to move on. 'A' Squadron further to the rear attacked and captured the strong point 'Hillman' which had been initially by-passed.

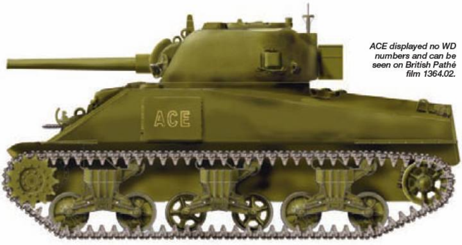
'C' Squadron now reached the antitank ditch in front of Lebisey Wood, however, by now the Regiment was strung out and Lieutenant Colonel Eardley (the Regiment's CO) requested that 'A' Squadron, which had been detached from his command for the 'Hillman' attack, be returned to support 'C' Squadron. This was granted and they duly took up positions to the west of Bieville.

At this point German tanks counter attacked 'C' Squadron. Sergeant Billings (in a Firefly) was able to knock out an enemy tank before he himself was hit and had to 'bale out'. However, it was soon appreciated that the damage was not serious and both he and his crew were able to remount and carry on the fight. The enemy, in an attempt to move around the flank, had now moved across 'C'



The nearest Sherman is ACE. The name, barely legible, is marked on the appliqué armour. This tank was also captured on a Pathé Newsreel (1364.02 together with AURORA II and ARIZONA) where the name is much clearer. Although not visible here the tank's turret stowage bin was unusually located on the turret's 4 to 5 o'clock position (if the gun barrel is considered to be 12 o'clock) and also a second turret bin was located on the rear hull plate. You can just make out a full set of marking's on the hull front; '52' (presumably on its red background although it is impossible to see) beneath the yellow 'A' Squadron triangle. Also just visible is part of the Brigade's seahorse insignia to the right of the towrope eye. (IWM B7518)





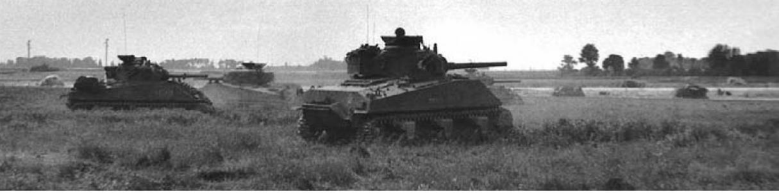
ACE displayed no WD numbers and can be seen on British Pathé film 1364.02.

Squadron's positions, but only succeeded in coming under the guns of 'A Squadron where Sergeant Joyce quickly knocked out four tanks. 'B' Squadron claimed a further two enemy tanks.

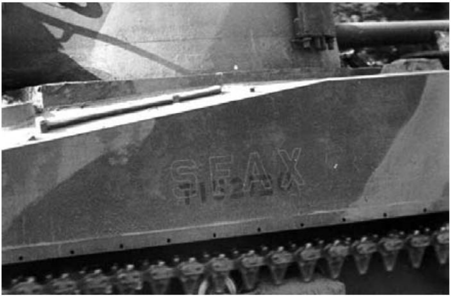
Two Troops from 'C' Squadron had, in the meantime, managed to cross the antitank ditch and together with men of the KSLI managed to gain a foothold in Lebisey Wood. It would prove untenable and, as the first day came to a close, they had to relinquish the captured ground to consolidate and leaguer for the night. During that first night German troops would move into the wood in strength.

D-Day for the Staffordshire Yeomanry had come to an end. Lebisey Wood would not be in British hands for another month. The Staffs Yeomanry had lost two officers and five troopers killed together with three troopers wounded and a further six men missing. However, in return they had bloodily repulsed the armoured attack by 21st Panzer Division and destroyed probably nine 'Mark IV Specials'. (Actually *PzKpfw IVs*; 'Mark IV Special' was British nomenclature for German armour indicating they had long 7.5 cm guns).

The rest of the Regiment's history in Normandy would mirror that of the rest of the British armour in Normandy. As part of Operation *Goodwood*, and the expansion of the bridgehead, the 27th Armoured Brigade found themselves engaged to the east of the River *Orne*. However, the Regiment's involvement in Normandy was brought to an abrupt halt when orders were received on 24th July that the 27th Armoured Brigade was to be disbanded. The 13/18th Hussars were to move to 8th Armoured Brigade whilst the East Riding Yeomanry went to 33rd Armoured Brigade. The Staffordshire Yeomanry, however, was ordered to return to England for specialist training. When



Taken on 6th June and, despite the IWM caption that they are 13/18th Hussars, shows tanks of 'A' Squadron, Staffs Yeomanry. On the left hand tank can be seen the name ARGYLL, which also appears in another photo. The tank on the right carries the 'A' Squadron triangle above the 52 AoS on the rear hull plate. No turret numbers are carried. (IWM B5021)



SFAX (a coastal town in Tunisia) passes within a couple of feet of the camera and provides us with a detail view of a camouflaged Sherman III. This is a film still taken when the Staffs Yeomanry were returning from the front north of Caen on 15th June 1944. Despite being taken a little over a week after the Regiment landed in Normandy no turret numbers are carried. Interestingly the outline name in this photo is darker than white and is, therefore, certainly yellow. Yellow, which would fit with the seniority of the Staffs Yeomanry in 27th Armoured Brigade, would be a logical choice. (3783)

they returned to the campaign in North West Europe in September 1944 it was as a Sherman DD equipped unit. Ahead of them lay the *Scheldt* Estuary, the Rivers' *Rhine* and *Elbe*, but that is another story.

Organization

I'm afraid that I've been unable to confirm, with certainty, the organization of the Staffs Yeomanry. Nevertheless, I would have assumed that each squadron would have comprised of four troops, each of three Sherman IIIs and one Sherman Firefly. However, there has been a suggestion that the Fireflies were not allocated to each troop, but were effectively made a separate troop of their own. However, Mr Les Davis, a 'C' Squadron tank commander during the Second World War wrote in a letter in 1999 …

"Firefly tanks with their 17 pounder long barrel and changed contour were so conspicuously 'different' to the general armament that they were put in the 'Secret Weapon' category and although nominally allocated one to each troop they were ordered to remain well to the rear of the initial action so in effect they became a separate troop of their own. It was this tactic of holding them back that led to the German attack on the evening of D-Day to fall into the trap of cruising contemptuously out of range of the standard Sherman and let the Firefly group make a good killing as the German tanks drove across the crest of the hills".

Markings

The Staffs Yeomanry seemed to have marked their vehicles in a different way to both its sister regiments in 27th Armoured Brigade. The 13/18th Hussars and the East Riding Yeomanry both chose to adopt the large coloured turret numbers outlined in white together with names painted on small panels on the hull sides.

I can find no evidence that the Staffs Yeomanry used the turret numbers. Although, the Regiment were photographed (and filmed) quite extensively no turret numbers are visible, despite some images being taken in early June when you would have expected the numbers to be visible. To illustrate this, in IWM photo B5021, which is reproduced here and taken on 6th June 1944, according to the IWM caption sheet, two Sherman IIIs are seen. Despite being taken on D-Day no turret numbers are visible. Although, I'd seen this photo reproduced several times over the years in various books it had always been credited as 13/18th Hussars and I just accepted it, (somehow forgetting that if they were Hussar's tanks then turret numbers should have been visible!)

However, Ludovic Fortin in his book *British Tanks in Normandy* is quite correct in identifying them Staffs Yeomanry tanks, you can see a faint '52' AoS (Arm of Service) number on the rear hull plate beneath an A Squadron triangle on the right hand tank. This style of combined AoS and squadron symbol can also be seen on other vehicles of the Regiment. Also, if you look carefully, you can see the tank on the left bears the name ARGYLL, which corresponds to IWM photo B7519 once again reproduced here. Similarly photo B5546 (shown in the Fortin book, but not here) shows a Staffs Yeomanry 'A' Squadron Firefly taken in early June, which once again shows that no turret numbers are carried. For whatever reason it would seem that the Staffs Yeomanry didn't adopt the practice of the other two regiments of using turret numbers.

With regards to other markings (with the exception of the individual tank names), little is visible; due I think to dust and dirt more than anything else. However, where markings are visible there are once again differences, particularly to the 13/18th Hussars. The 13/18th Hussars (certainly on their tanks) seem to have opted for a small seahorse on a white outlined blue shield. Firstly, the Staffs Yeomanry rarely added the white outline and also seemed to have painted on a much larger version of the seahorse (indication that a different sized stencil was used perhaps?) Whilst I'm only viewing a small selection of photos it is enough, I think, to make a valid judgement.

The AoS sign '52' is visible in many shots and in the majority, if not all cases, the Squadron sign is above. This seems to have been repeated on the rear hull also in the same format. It is, however, a little more uncertain how the Reconnaissance Troop marked their vehicles; there is fewer photos and different vehicles were used.

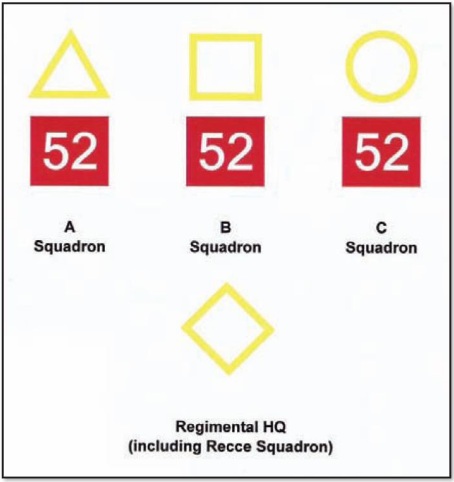
Tank Names

Once again we are faced with a different marking system compared to the other two regiments of the Brigade; the Staffs Yeomanry appear to have opted for a chalked on (or thinly painted?), subdued style for individual tank names. Les Davis, again from his letter in 1999, wrote that 'C' Squadron marked their tanks with names …" *in very bright yellow……….twelve inches high, the down strokes about an inch and a quarter wide*".

Despite the recollection being clear, I can find no evidence of this (perhaps this was in Mr Davis's troop only?) However, it must be remembered that this was written some 55 years later and recalling a time when Mr Davis would have had much more important things on his mind than tank names and colours! Alternatively, it could be that tanks were marked in this way prior to Normandy and the system was changed shortly before D-Day. (?)

Table: Staffordshire Yeomanry Tank Names

	Squadron	WD No.	Appliqué Hull Armour	Head Covers	Gun & Mantlet Type	Primary Information Source	Remarks
ACCUSER	A	n/k	Yes	Standard	75mm Narrow M34	IWM Photo	Additional aerial on glacis
ACE	A	n/k	Yes	Direct Vision Block	75mm Narrow M34	IWM Photo and Film	Visible on British Pathé film 1364.02
ACHILLES	A	T151268	n/k	Square Mid Production	n/k	IWM Film	
AGGRESSOR	A	n/k	No	Square Mid Production	75mm Narrow M34	IWM Photo	Squadron CO's tank (?) additional aerial on glacis
ANCHOR	A	REC151038	n/a	n/k	n/a	IWM Film	Sherman ARV I (M4A2)
ANGER	A	n/k	n/k	n/k	75mm	IWM Film	
ARGYLL	A	n/k	Yes	Probably direct vision block	75mm Narrow M34	IWM Photos	
ARIZONA II	A	T152843 (?)	Yes	Square Mid Production	75mm Wide M34A1	IWM Film	Visible on British Pathé film 1364.02
ATHENE	A	T151238	n/k	n/k	75mm Wide M34A1	IWM Film	
AVENGER	A	n/k	Yes	n/k	n/k	IWM Photo	
AURORA II	A	n/k	Yes	Square Mid Production	75mm Narrow M34	IWM Film	This tank carries strange welded plates to the hull and also a domed feature on the turret. Visible on British Pathé film 1364.02
BASTION	B	n/k	Yes	Square Mid Production	75mm Narrow M34	IWM Film	Visible on British Pathé film 1364.02
BELVEDERE	B	T212680	n/a	Standard	17pdr	IWM Photo & Film	Mark Vc 'Firefly' (M4A4)
BOBBIE	B	T152313	No	Probably Direct Vision Block	n/k	IWM Photo	
BUNTY	B	T151830	No	Square Mid Production	n/k	IWM Photo	Visible on British Pathé film 1360.08
CRUSADER	C	n/k	Yes	n/k	75mm	IWM Film	
CAPUZZO	C	T152879(?)	Yes	n/k	75mm Poss. Wide M34A1	IWM Photo	
EL HAMMA	C	n/k	n/k	n/k	n/k	Mr Davis's Letter	
EL ALAMEIN	C	n/k	n/k	n/k	n/k	Mr Davis's Letter	
SFAX	C	T152120	No	Direct Vision Block		IWM Film	Camouflaged tank; just the front hull is visible on British Pathé film 1951.12
TRIPOLI II	C	n/k	No	n/k	75mm Wide M34A1	IWM Film	
TUNIS	C	n/k	n/k	n/k	n/k	Mr Davis's Letter	
DOVER	Recce Troop	T156729	n/a	n/a	n/a	IWM Film	
CHAOS	HQ Troop	n/k	n/a	n/a	n/a	Tank Museum Photo	



Unit serial numbers and squadron tactical signs for the Staffordshire Yeomanry.

Nevertheless, the outlined lettering does seem the norm for the Staffordshire Yeomanry with the exceptions of ANCHOR and CHAOS but this is due to the vehicles on which they are painted having little side hull area to accommodate them. Judging from the photos I've studied I would hazard a guess that the names were in yellow despite the fact that the names in most photos appear white. Nevertheless, in the close up photo of SFAX the name certainly appears to be yellow. The appearance of the names as white may be more a photographic effect. However, if anyone can clarify this (or indeed any other issues around the markings carried by the Staffs Yeomanry in Normandy) then both the Editor and I would like to hear from you!

What I have established is that 'A' and 'B' Squadrons together with the Reconnaissance Troop used alliterative names whilst 'C' Squadron used names, not always alliterative, but certainly with a 'desert' connection. Mr Davis, once again:

"My troop clicked for the 'El……', the Troop Leader bagging 'El Hamma' and giving me ' El Alamein' …the tank I left below Lebisey Wood. The next tank I took over was in another troop (and) was named 'Tunis' ".

My full list of names, so far, is included in the table reproduced here and I have indicated, where known, any relevant information.

Colours

It's not always easy to say with any certainty what colour British tanks were painted. Presumably the Fireflies, due to the conversion work required, would have been repainted either in part or completely in SCC15 Olive Drab, which is the British version of US Olive Drab. The 'ordinary' Sherman IIIs, I am guessing, would have been in their original US Olive Drab, perhaps with any resultant 'damage' by the addition of the turret track block holders ('Quickfit') being touched up? However, this is no more than speculation on my part.

What is certain, however, is that an additional camouflage colour was used on at least one tank SFAX (and indeed may have used by other tanks; CRUSADER and BELVEDERE seem to show lighter areas). This camouflage colour is, of course, not known.

Conclusion

Researching one armoured regiment from the British army has been a most interesting and intriguing project. I was helped by having a generally good selection of images to work from and, of course, the time.

Finally, I'd like to thank the staff at the Imperial War Museum's Film Archive and also a big 'thank you' to the Editor for his help producing this feature. My next article will cover another regiment of 27th Armoured Brigade, The East Riding Yeomanry.)

Recommended Reading and Viewing

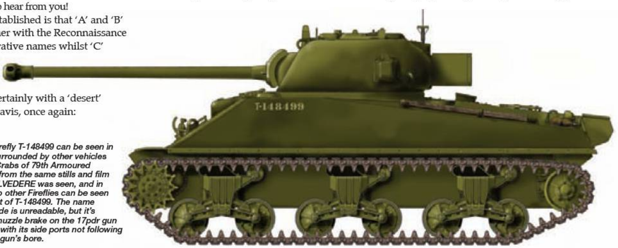
The Staffordshire Yeomanry, Major D.F. Underhill. (Staffordshire Libraries, Arts and Archives). This account written by a former officer of the Regiment forms the basis of the history in Normandy section.

'Staffordshire Yeomanry's War Diary'. British Official War Diaries are invaluable for a project such as this and can be obtained from the National Archive at Kew (Public Records Office) or, I believe, possibly from the copies held at The Tank Museum, Bovington.

British Tanks in Normandy by Ludovic Fortin (Histoire & Collections). A great book packed with pictures, but be wary of some of the captions.

Also available are some wonderful films of the Regiment on the British Pathé Website www.britishpathe.com. I found clips on reels 1364.02 (ACE, AURORA II, ARIZONA), 1360.08 (CRUSADER and BASTION) and 1951.12 (SFAX).

However, by far and away the best film is at the IWM. An online search at their website www.iwm.org.uk for either film or photographs can prove a good starting point. ■



Sherman Mark Vc Firefly T-148499 can be seen in IWM photo B7521 surrounded by other vehicles including Sherman Crabs of 79th Armoured Division. This photo from the same stills and film sequence where BELVEDERE was seen, and in some film angles two other Fireflies can be seen parked in line in front of T-148499. The name on T-148499's hull side is unreadable, but it's noticeable that the muzzle brake on the 17pdr gun was fitted off centre with its side ports not following the centreline of the gun's bore.

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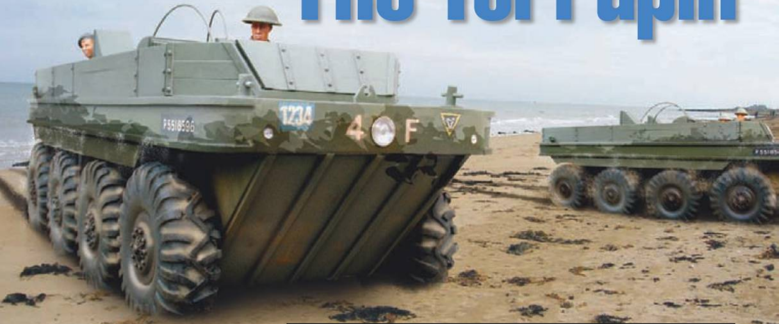
Richard Brissette and Mark Bannerman model the British Second World War four-ton amphibian in 1:35 scale

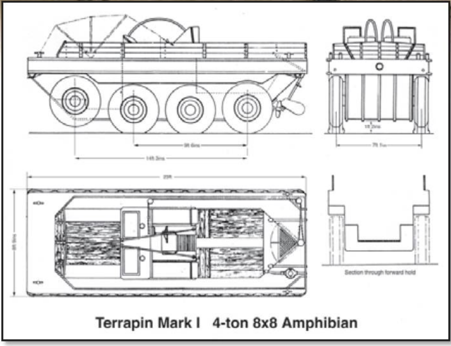
The Terrapin



The Terrapin Mark I 4-ton 8x8 Amphibian was designed and manufactured during the latter part of the Second World War to facilitate the transport of supplies and troops. The Terrapin was Britain's response to the short supply of US-made DUKWs with the intended purpose as a ship-to-shore transporter for the D-Day landings. However, the Terrapins were not put into service as a ship-to-shore transporter, but relegated to ferry transporters to navigate the flooded fields, rivers and waterways of Holland. One of the most important operations in which the Terrapin provided a significant role was securing the River *Scheldt* in October 1944 prior to the Allied capture of the Belgian port of Antwerp.

The Wartime Ministry of Supply commissioned the design of the Terrapin to Thornycroft, but the vehicle was manufactured by Morris-Commercial Cars Ltd (MCC) who produced approximately 500 of them for the war effort. The Terrapin Mark I was a 4-ton, 8 X 8 amphibious truck powered by two twin Ford V8 engines, which were mounted side by side, each engine operating the four wheels on either side of the truck. When the truck was driven on a level surface, the weight of the truck was carried on the two middle wheels on both sides. The back wheels would come into play only when the truck was driven on muddy or soft ground while the front wheels were used when climbing slopes and riverbanks.

The maximum speed of the Terrapin was 15mph on land and the two rear-mounted propellers provided a 5mph speed in water. The large 12.75 x 24 agricultural tractor types wheels with chevron pattern and the transmission design allowed the truck to move on both hard ground and soft ground.


25ft
Section through forward hold
Terrapin Mark I 4-ton 8x8 Amphibian

A general arrangement drawing of Terrapin Mark I.

The Terrapin Mark I had several defects, the most notable being the poor visibility from the driver's seat, which was centrally located in the vehicle. However, it was typical for an observer to stand behind the driver to provide guidance and direction particularly when the canvas cover was installed over the front of the vehicle. The purpose of a front canvas cover was to protect the forward hold from large waves while the Terrapin was navigating through rough waters.

The Terrapin had a poor record for manoeuvrability, particularly in rough waters, and it was difficult to steer. In addition, there was always a looming danger that the engine would flood. Although the Terrapin could carry more cargo than the DUKW, it was limited by the size of the cargo because of the oddly shaped configuration of the cargo holds.

The River Scheldt

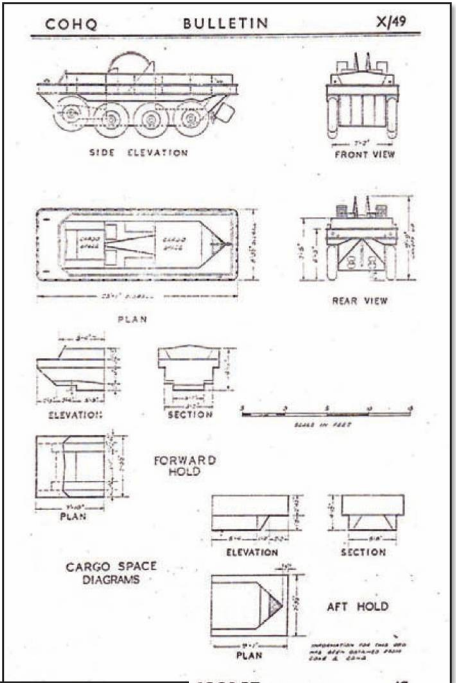
The most notable service provided by the Terrapins were those serving with the 79th Armoured Division on the River *Scheldt* in

October 1944 where an amphibious assault was initiated in the area of Breskens to assist the Canadian Army. In the early hours of 8th October 1944, 100 Buffaloes of the 5th Assault Regiment of 79th Armoured Division transported the 9th Canadian Infantry Brigade across the *Braakman* Inlet. The following day, 40 Terrapins of the 82nd Assault Squadron of 6th Assault Regiment joined the ferrying operations. Over the following two days, the 8th Canadian Infantry Brigade joined the 9th Canadian Infantry Brigade to secure the area. By 12th October, most of the Buffaloes had encountered some mechanical failures and the Terrapins continued to operate by ferrying troops and supplies to the two Canadian Brigades.

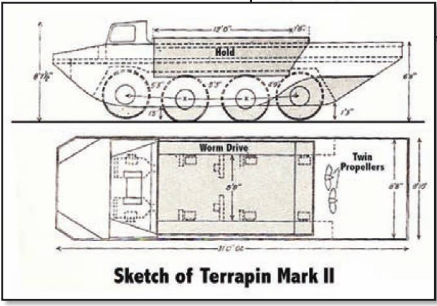
The Terrapins also served in large numbers with the 79th Armoured Division on South Beveland two weeks later at the end of October 1944, with an assault undertaken to relieve the 2nd Canadian Division. The first assault included the 52nd Lowland Division being ferried by Buffaloes of the 5th Assault Regiment and 11th Royal Tank Regiment. A second assault with 27 Terrapins of the 1st Assault Brigade joined the operations with landings near Baarland. This operation also included 18 DD Shermans.

Although the Terrapin was designed to carry either a 25pdr, 95mm howitzer, 6pdr or a 17pdr guns, no photographic evidence exists (in our research anyway) denoting the Terrapin with artillery. We did find a photograph of a Terrapin with about two dozen infantrymen in the hold waiting to be ferried. In both assaults mentioned, the Terrapin's task was specifically the ferrying of troops and supplies to its destination point and the return journey was primarily for the wounded, German prisoners and civilian refugees.

A Mark II Terrapin was also designed which had a driving position in a cab forward, but this only reached the prototype stage and never entered series production.



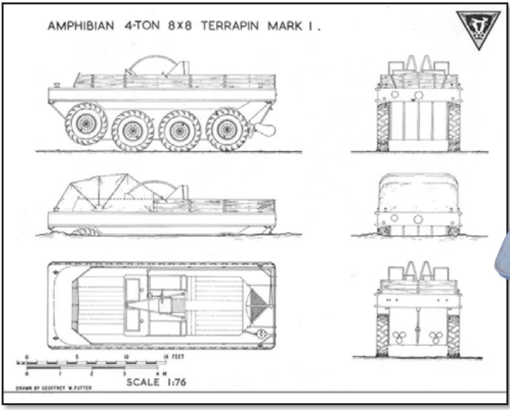
Facsimile of page 17 from 'COHQ Bulletin X/49' gives a basic general arrangement drawing with dimensions and sections of Terrapin Mark I. A very useful aid for anyone wishing to model a Terrapin.



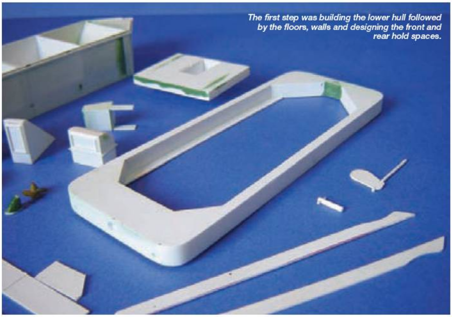
Dimensioned general arrangement sketch of Terrapin Mark II. Note the driver was positioned forward in an enclosed cab. Prototype vehicles were built, but it was not put into production.

The Model

There are no kits available (as yet) of this vehicle and therefore it was necessary to scratch build it entirely. Richard used several plans and wartime 'COHQ' specs, which included precise measurements and details on maintenance of the Terrapin. The Terrapin Mark I was 23 feet 1 inch long (almost 7 metres) and 8 feet 3 inches (2.5 metres) at its widest point. Translated into 1:35 scale, the model would therefore be 19.8 cm long and 7.1 cm wide. Richard drew out a template onto large pieces of 20 thou Evergreen sheet styrene and cut these with a sharp hobby knife. The first step was to build the lower hull followed by the floors, walls and designing the front and rear holding spaces. Once all of the parts were


AMPHIBIAN 4-TON 8X8 TERRAPIN MARK I.
0
5
10
14 FEET
0
1
2
3
4 M
SCALE 1:76
DRAWN BY GEOFFREY W. FUTTER

ABOVE: It's been done before! The late Geoffrey Futter's 1:76 scale drawing from a 1970s Military Modelling magazine series on 'The Funnies' that was all about 79th Armoured Division and its vehicles.



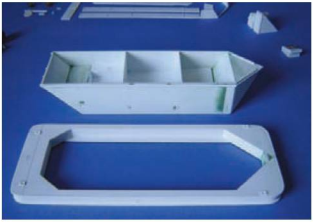
The first step was building the lower hull followed by the floors, walls and designing the front and rear hold spaces.

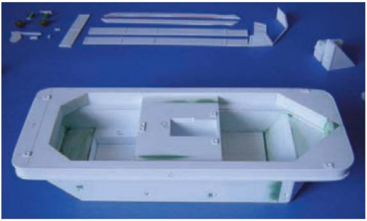
ABOVE: The Terrapin build was drawn out on sheet styrene using several plans and wartime 'COHQ' specs, which included precise measurements and details on maintenance of the Terrapin.

cut out, these were cemented together with several dry runs to ensure a good fit. Fortunately, the Terrapin is quite 'angular' and made the cutting, fitting and gluing that much simpler.

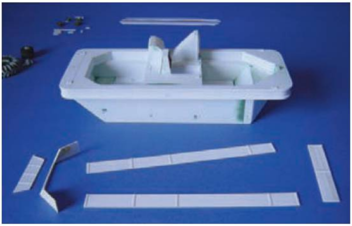
The timber superstructure that runs along to the length of the hull sides was cut using a thicker sheet styrene (30 thou) and was then scored with a dull hobby knife blade to replicate the wooden planks. Brackets made from styrene strips were added to support the timber. One trick to scratch building any project such as this is to always cut your parts slightly larger than you will need because it's easier to remove excess styrene than it is to replace it!

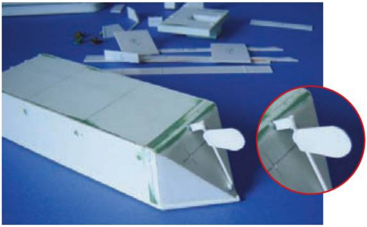
A master engine cover and air intake were fashioned from sheet styrene and then cast in resin. The outlets were then covered with brass mesh. In our research, the grilles on the air intake and the engine covers appeared to all face towards the rear. This was based on a sketch from a wartime 'COHQ' and from an existing Terrapin in existence today in the impressive Wheatcroft collection in the UK (http://www.wheatcroftcollection.com). However, when studying sketchy wartime photos, one can just make out that the covers in front of the driver actually face toward



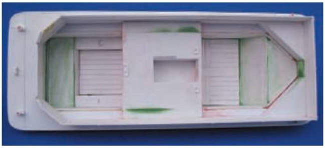


ABOVE LEFT: The upper and lower hulls were built as two separate parts to facilitate measuring and allowing for several dry runs to ensure a good fit.
ABOVE RIGHT: The larger parts were then cemented together.



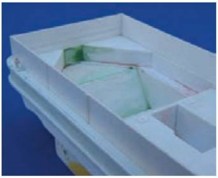


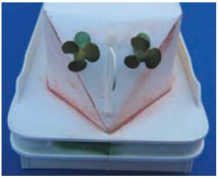
ABOVE: Most of the larger parts were glued using Elmer's regular white glue. Although liquid glue works well for small attachments, white glue tends to give a much stronger bond between larger parts. ABOVE RIGHT: The rudder and propellers were also fashioned from sheet styrene.

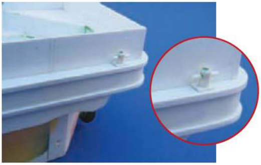


ABOVE LEFT: The main hull is now complete and details can be added on the exterior and interior surfaces. ABOVE RIGHT: Strips of sheet styrene were used for the floors to duplicate wooden planks.

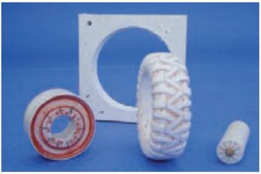
ABOVE LEFT: Brackets using styrene strips were also added to support the lengths of timber planks on the upper hull. ABOVE RIGHT: A view inside of the front hold of the Terrapin. RIGHT: Considerable sanding was necessary to bring the edge of the forward and rear hulls to a rounded shape.





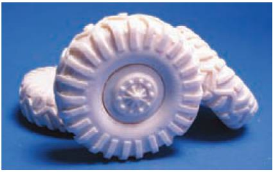


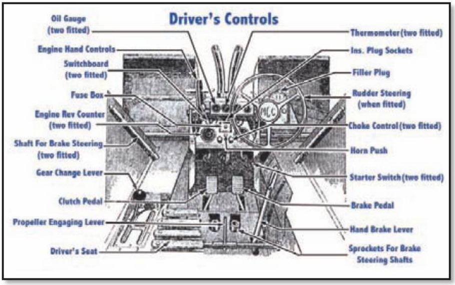
ABOVE LEFT: View of the rear hold. ABOVE CENTRE: The rear underside of the model with propeller and rudder. Certain areas needed to be filled with auto primer and Green Putty to cover gaps and also provide reinforcement between glued parts. ABOVE RIGHT & INSET: Small surface details such as the rope tie-downs were fashioned from sheet styrene.

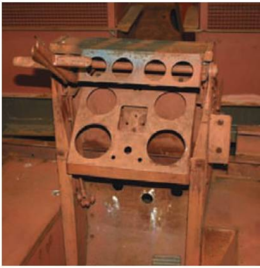


LEFT: The wheels were cast from a master. The master was made entirely from sheet styrene and then small strips of 15 thou sheet styrene were cut and added on the tyre with super glue to provide the correct tread pattern. This was the third attempt at a master!

RIGHT: Once the master was complete, eight copies were cast in resin. A hub master pattern was made separately so that the hubs cast from it could be fitted with 'reversed' tyres ensuring that all treads faced in the same direction.

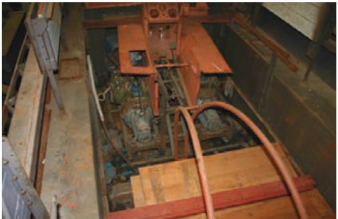


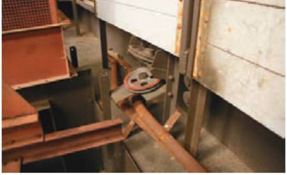

Driver's Controls
Oil Gauge (two fitted)
Engine Hand Controls
Switchboard (two fitted)
Fuse Box
Engine Rev Counter (two fitted)
Shaft For Brake Steering (two fitted)
Gear Change Lever
Clutch Pedal
Propeller Engaging Lever
Driver's Seat
Thermometer (two fitted)
Ins. Plug Sockets
Filler Plug
Rudder Steering (when fitted)
Choke Control (two fitted)
Horn Push
Starter Switch (two fitted)
Brake Pedal
Hand Brake Lever
Sprockets For Brake Steering Shafts


Driver's instrument panel.

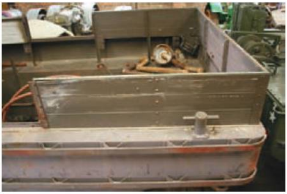
ABOVE LEFT: A Terrapin Mark I, surrounded by military soft skins and assorted AFVs, plus tractors, in a building is undergoing restoration in the Wheatcroft Collection. (Photos: Brian Balkwill). ABOVE RIGHT: Close up of the front drop-down planked splashboard on the Wheatcroft Terrapin.

ABOVE LEFT: MAnother view looking forward reveals more of the driver's position and the detached rollover bars stowed inside the hull. The Terrapin is standing on a set of smaller, temporary wheels. ABOVE RIGHT: The left side engine air intake grille and trunking inside the hull looking forward. BELOW LEFT: Looking towards the bow, the 'amidships' driver's position can just be made out behind the engine air intakes – all in red primer. BELOW RIGHT: An elevated view inside shows how the driver's position is more or less centrally located over the twin engines and their gearboxes. The driver's rollover bars are yet to be fitted into place and are stored in the foreground of this view.





Position of the forward steering pulleys from the driver's position.



The rear end (stern) has a cleat bolted on either side. Inside, in the far corner, the steering cable pulleys to the rudder are just visible.

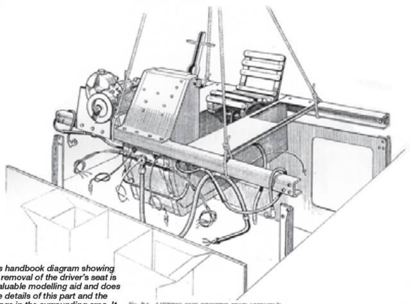
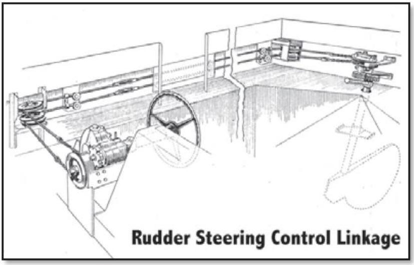


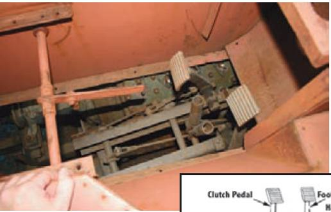
Fig. B.6. LIFTING OUT DRIVER'S SEAT ASSEMBLY.

This handbook diagram showing the removal of the driver's seat is a valuable modelling aid and does give details of this part and the fittings in the surrounding area. It bolts into the body as one unit.



Rudder Steering Control Linkage

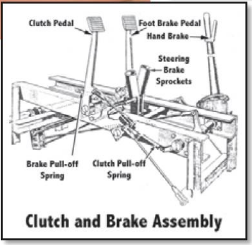
ABOVE: How the steering wheel controls the rudder via cables and pulleys when travelling on water.



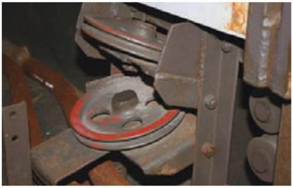
ABOVE: The clutch (left) and brake pedal assembly with the steering brake sprockets between – compare this with the handbook drawing.

RIGHT: Assembly for the clutch and brake that fits under the floor of the driver's position.

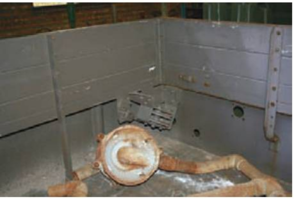
BELOW: Left inside corner of the body where the steering pulleys are located. Note the angle that the supporting bracket is mounted onto the inside of the body. Compare this with the handbook drawing showing the steering linkage.

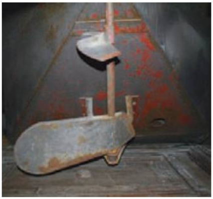


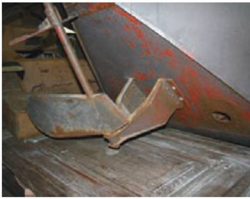
Clutch Pedal
Foot Brake Pedal
Hand Brake
Steering Brake Sprockets
Brake Pull-off Spring
Clutch Pull-off Spring
Clutch and Brake Assembly

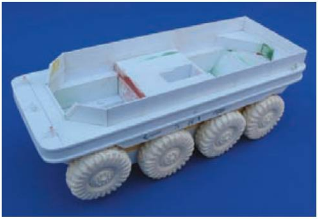


ABOVE: The forward steering pulleys and bracket; note the smaller cable feed pulleys at extreme right of the photo. BELOW: The rudder and its mounting brackets.

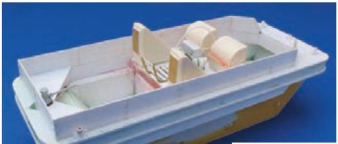


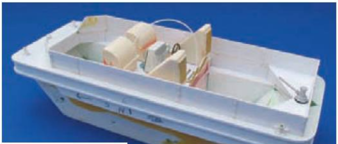




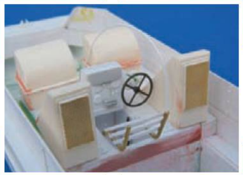


Views of the main hull with wheels temporarily attached using Blu Tack putty to ensure a good fit.

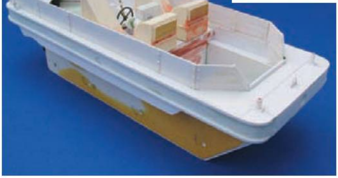


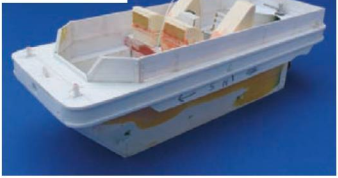


ABOVE: *The master engine cover and air-intake were fashioned from sheet styrene and then two copies of each were cast in resin. The outlets were then covered with spare brass mesh.* ***BELOW:*** *The layout was based on a sketch from a Wartime 'COHQ' manual for the Terrapin.*



ABOVE: *The interior detailing begins with temporarily placing the various parts to ensure good fit.* ***INSET LEFT:*** *The driver's controls include a dashboard and switchboard. The steering wheel was used from a parts box and the clutch and brake pedals were spare etch from the Eduard DUKW kit. The driver sits in the middle of the Terrapin, but the steering wheel was located slightly to the right of the dashboard.*

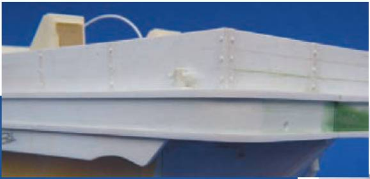




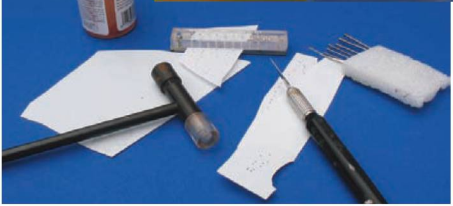
towards the front of the Terrapin. The research crew at Wheatcroft (Thanks Brian!) confirmed that their Website photos actually show the air intakes and other panels loosely stacked and not fixed in place. It is also quite possible that the trunking can be slid in to face either front or back. As we simply did not know and could not get confirmation, we opted to go with the manner in which these were placed from three grainy wartime photos of the Terrapin, that is, the air intake and engine covers to be facing in opposite directions.

The driver's controls include a dashboard and switchboard made from 15 thou sheet styrene and we used Archer Fine Transfer dials for the thermometer, oil pressure gauge, and engine revolution counter. The steering wheel was found in the parts box and the clutch and brake pedals were spare etch from the Eduard DUKW kit. Although the driver sits in the middle of the Terrapin, the steering wheel was actually located slightly to the right of the dashboard. There were two methods of steering the Terrapin - depending

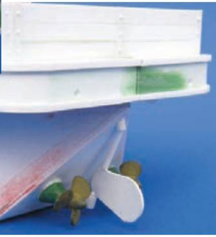
RIGHT: Rivets were added to the inside and outside of the upper hull brackets using liquid glue.

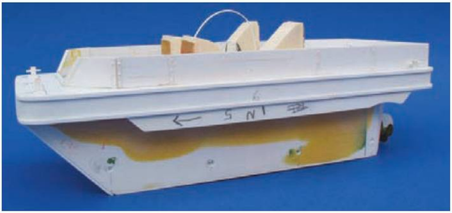


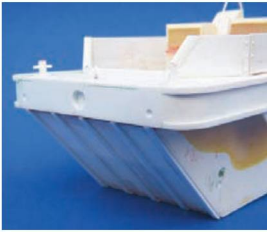
BELOW: A punch-and-die set was used to make .28 rivets.



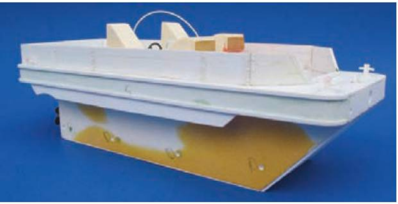
Green Putty was added to those areas where too much sanding had either removed details or blemished the surface. A good remedy for scratched surfaces due to excessive sanding is liquid glue in two or three applications followed by a light spray of gloss coat.





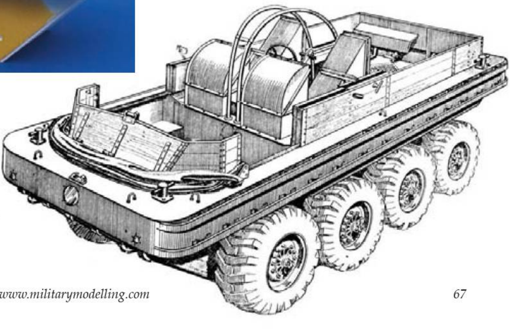


Holes were drilled into the front and rear upper hulls to accommodate lights.



Side views of the hull.

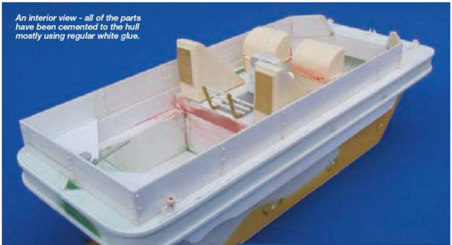
BELOW: Terrapin Mark I from the handbook. Note the direction of the engine air intake stacks.



on whether the truck was travelling on land or in water. The steering wheel was used to steer the rudder while the Terrapin was travelling through waterways and a chain and sturdy rope were attached to the rear of the steering wheel mechanism and ran along the right side of the Terrapin to the upper rudder arm in the rear.

On land, the Terrapin was operated with a brake steering mechanism using two removable shafts that were placed inside two sockets in the driver's floor. As the Terrapin moved on land, the driver would pull on one of the shafts to brake-steer the wheels. The steering arrangement on the model was made using HO gauge railroad wheels cut down for the pulley system, some fine chain, thin rope and various bits of etch and spares box plastic parts.

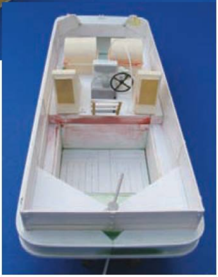
The driver's seat is a unique piece of engineering and this was also made using strips of sheet styrene cut to size and glued



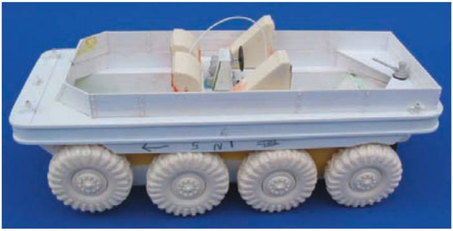
An interior view - all of the parts have been cemented to the hull mostly using regular white glue.

GAMES WORKSHOP
CHAOS BLACK

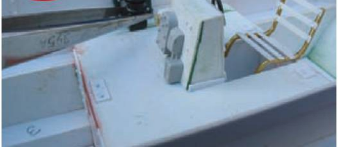
To start the painting process, the model was given a light scrubbing with soap and water and an old toothbrush. Once dry, the model was primed in Citadel Warhammer Black to provide tooth for subsequent paint, and allow the base coat to be uniform in appearance.

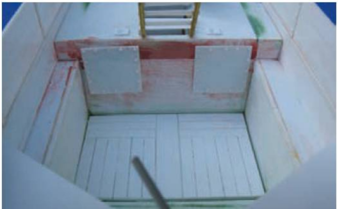


ABOVE LEFT: The interior has now been permanently glued in place and the model is ready for the paint process. ABOVE RIGHT: Note the use of auto primer (red) to fill gaps and glitches. This is wonderful putty than can be sanded to a superb smooth finish.



ABOVE: A side view with the interior exposed. The wheels are tested for the last time to ensure that the sanding had not altered the their positions on the hull. The building process is nearing completion. BELOW LEFT & INSET: One of the two pulleys for the steering mechanism being positioned. The rope attached to the two pulleys ran along the right side of the Terrapin to control the rear rudder. The pulley was scratch built using HO railroad wheels. BELOW RIGHT: The rear rudder arm slightly reworked from an Italeri German field shop set, and engine covers added to the walls of the inside hull. The driver's seat was made using sheet styrene strips cut to size and glued onto soft brass wire.





onto bent brass wire. The front and back cargo hold floors were fashioned from strips of sheet styrene to depict wooden planks. Several hundred rivets were also made using a punch-and-die set (.028) and added on the inner and outer wooden plank supports running along the length of the terrapin, as well as on the engine and exhaust hatches. The rivets were placed in the appropriate locations according to drawings and sketches.

The eight wheels were cast in resin from a master pattern. The master 'Dumper Tyre' was made entirely from sheet styrene and then small strips of 15 thou sheet styrene were cut and added on its periphery with super glue to provide the correct tread pattern. Once the master was complete, eight copies were cast in resin. The wheel hub was made separately so that the tyres could be reversed, resulting with all treads facing the same direction once these were fixed to either side of the model.

Painting and Markings

The model first received a good scrubbing with soap and water and an old toothbrush. Once dry, it was primed in Citadel Warhammer Black to provide 'tooth' for subsequent paint and also allow the base coat to be uniform in appearance.

For the base painting process, further investigation revealed very little on the actual colour of the Terrapin and it is very difficult to decipher colour from wartime black and white photos. However, Terrapins were put into service late in the war and by October 1944,

TAMIYA COLOR

The rubber tyres were painted with a Tamiya aerosol labelled NATO Black TS 63 (item 85063). Note the use of a tube cap to protect the base green coloured hubs.

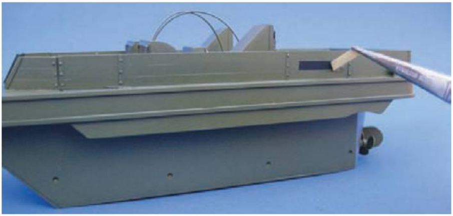
most British military vehicles had been painted in an overall plain Standard Camouflage Colour (SCC)15. This was a close match to US Olive Drab (Tamiya Olive Drab XF62) but the British version was a greener shade than the US version. For this project, we used a combination of Tamiya XF62 and added a few drops of medium green which was further mixed with 40% Tamiya Thinners X20A.

The paint was sprayed lightly to all parts with an Iwata HP-B airbrush at 20 dpi. A second coat of the paint was applied using the same colour mix to ensure all surface areas received a light application of the paint. This was left to dry in a shoebox for several days.

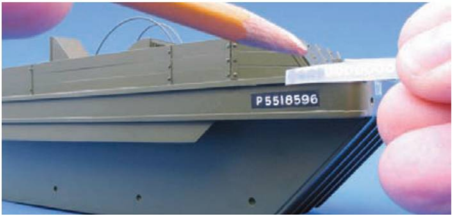
For the markings, we did find several relatively clear wartime photographs of Terrapins serving with 79th Armoured Division in the River *Scheldt* campaign. Unfortunately, not all photos reveal all of the markings on any one Terrapin. We did, however, make reference to some information made available to us by 'Ossie' Orsbourne who had the markings for one specific Terrapin – a Terrapin that his father navigated during the war. Ossie's father was in a Terrapin named LIFEGUARD and served at Savoyaards Plaat with the 82nd Assault Squadron of 79th Armoured Division in mid-October 1944. The 82nd Assault Squadron unit sign was 1234 in white numbers on a Cobalt Blue background.

These unit serials were made on a laser desk printer with the assistance of Marc Bourque (Thanks Marc!) The 79th Armoured Division bull's head marking and the name of the vehicle LIFEGAURD were sourced from the Archer Fine Transfer set. Other wartime photos show Terrapins serving with the same Squadron carrying names such as CERUS and CORUS. The WD number for LIFEGUARD was P 5518596 and was stencilled in white on a black background. Placing strips of Tamiya tape produced the black backgrounds over the black primer to protect it from the base colour. The vehicle's call sign '4F was hand-painted with Vallejo white acrylics. We also used the Archer Fine Transfer dials and gauges for the driver's dashboard.

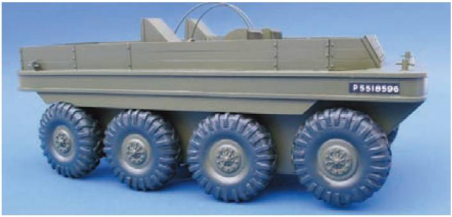
The tyres were painted with a Tamiya aerosol labelled NATO Black No. TS 63 (item 85063). This is not a stark black colour, but rather a very dark grey that was a perfect for this purpose. We covered the centre hubs



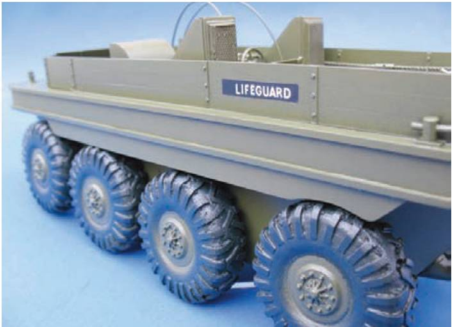
Before applying the base paint, strips of Tamiya masking tape were positioned to eventually reveal a dark background for the name and WD numbers of the vehicle.



For the markings, we used primarily Archer Fine Transfers to depict a Terrapin serving with the 82nd Assault Squadron of 79th Armoured Division. The transfers were rubbed on using a dulled pencil.



ABOVE: The Terrapin has been base-coated and markings have been applied. BELOW: The Terrapin received a light application of Testor's 'Dull Cote' to help seal in the transfers before the weathering process begins, lightly applied, otherwise it will 'eat' away the transfers.



A wash of Sepia oil paint mixed with MIG paint thinners was applied to the whole model to break up the surface tension.

Pigments were used to further accentuate shadow areas on the Terrapin.

A heavier wash of Sepia and Raw Umber was made on the inside of the Terrapin.

(with a Vallejo paint jar cover!) and the NATO Black paint was sprayed on in two light coats. Any gaps between the edge of the hub and border of the black spray was filled in with a brush using Tamiya NATO Black XF69 acrylic paint from the small jars, mixed with some Tamiya Thinner X20A.

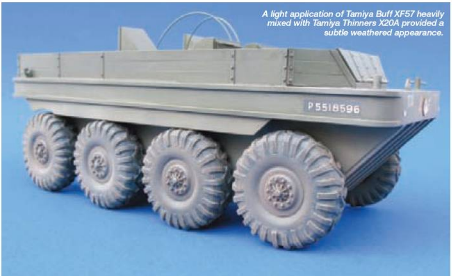
Weathering

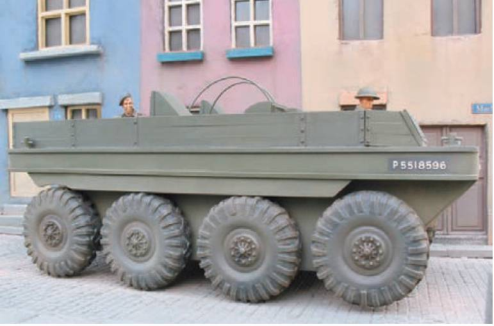
With the Terrapin base-painted and marked, we applied two separate filters to break up the monotony of a single-colour base. The first filter was Humbrol Mid Stone 84 mixed with 95% Testor's thinners and this was allowed to dry thoroughly over night. For the second filter, we used Winsor & Newton Burnt Sienna mixed with 95% enamel thinners. One of the characteristics of filters is that the accumulation of paint in crevices may look a little unrealistic at first, but can be remedied by brushing out excess filter residue with clean thinners. Another option to remedy this problem is to apply a series of pin-washes. Pin-washes are controlled and localized applications of washes along crevices and in shadow areas, such as along seams. We applied one pin-wash using Raw Umber mixed with Ivory Black and Testor's thinners and applied to the model with a 'liner' brush.

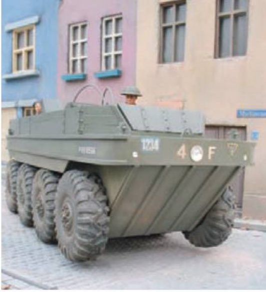
It appears modellers are moving away from the classic dry brushing method of brushing a model 4–5 times with gradual lighter tones of the base colour. The more popular approach is a restrained dry-brush with perhaps only 1 -3 applications. We followed this by applying two very restrained applications first with neat Humbrol Olive Drab 155 and the second with Humbrol Mid Stone 84. The key to dry brushing is to ensure that the brush is almost devoid of any paint. The absolute least amount of paint provides the subtlest effects.

The next weathering step we wanted to apply was the 'water-runoff' technique. The truck would have spent considerable time in the water and it was necessary to show some effects as a result of being submerged in muddy waters. There are several methods for applying the water run-offs and some are more risky than others. Mike Rinaldi is a true master of this technique and we wanted to try his technique out on this model. The method involves combining Tamiya thinners and a mix of brown/black pastels. The pastels are diluted in thinners in a 1:4 ratio and applied using a liner brush. The brush is moistened with the pastel/thinner mix (not soaked) and the brush is then brushed in a downward motion on vertical edges in short strokes. It helps to mask off the upper surface edges to avoid a build up of paint.

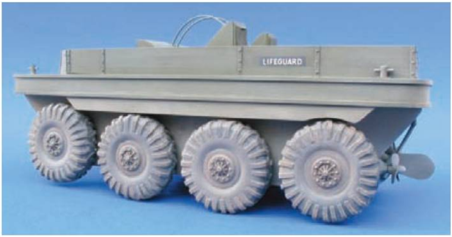
Once this was complete, we started with the wet-pastels technique that calls for the mixing of black and brown pastels with Tamiya thinners (optionally with enamel thinners) and applying this mix on around nuts, bolts, along seams, crevices and shadows areas with a 'liner' brush. We also applied dry pigments onto the surface of the model. One of the difficulties in applying pigments - or any weathering technique - is knowing when to stop, and finding the balance between too little and too much. The best way to proceed is to apply a bit at a time working in small sections at a time until it looks correct. The pastels were applied more


A light application of Tamiya Buff XF57 heavily mixed with Tamiya Thinners X20A provided a subtle weathered appearance.

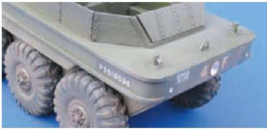




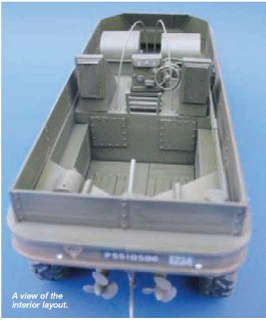
The Terrapin was added to a scenic base with backdrop depicting a Dutch town with Hornet figures to add the human element.



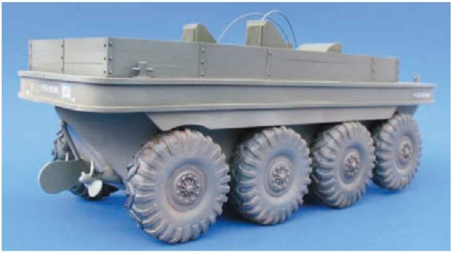
Pastels were applied more heavily in those areas that would typically have more accumulation of dirt - notably the lower hull and wheels.



MV lenses were used for the front and rear lights.



A view of the interior layout.



Several light sprays of Tamiya Thinners X20A were applied to the model to seal the dust pigments in place.

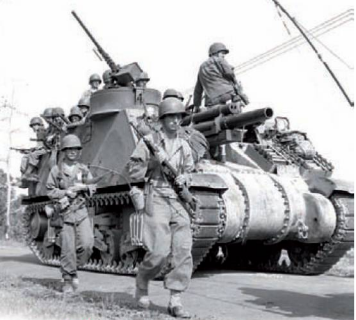
heavily in those areas that would typically have more dust and dirt accumulation – notably the lower hull and running gear. Pastels applied to models become susceptible to handling and to remedy this and make the pastels more permanent, several light sprays of Tamiya thinners were applied to the model to seal the dust pigments in place. To attain a more heavily weathered effect, this may require several applications of dry pigments followed by a dosing of Tamiya thinners.

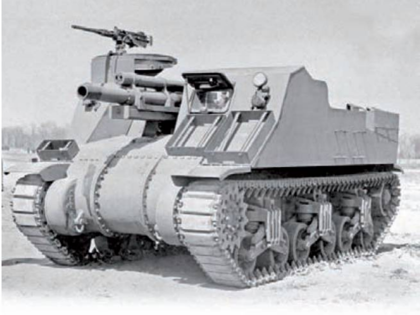
Acknowledgements

This was a very enjoyable collaborative project to do on a subject not well covered in books. One of the most interesting parts of this project was the research and trying to find as much information as possible to allow us to proceed with a scaled rendition of the Terrapin.

With limited references and images to work from, Richard and I spent 85% of our time researching the project and in doing so made many new contacts in Britain, Australia, New Zealand and South Africa. We were surprised how many people in the most unlikely of places had information on this vehicle! There are a great number of like-minded individuals out there who are always ready to help and for this we greatly thank them. We also thank Brian Balkwill, Ossie Orsbourne, Mike Starmer and Ken Jones for their advice and input.

The photographs of the Terrapin Mark I undergoing restoration in the Wheatcroft Collection, and reproduced here with their kind permission, were taken by Brian Balkwill. The Wheatcroft Collection Website: http://www.wheatcroftcollection.com/ ■

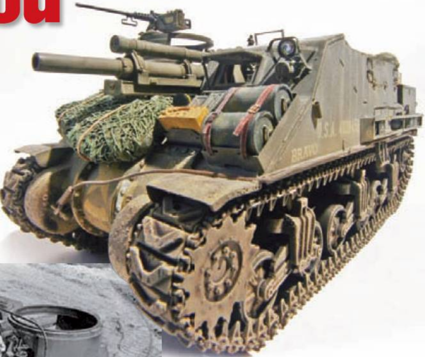


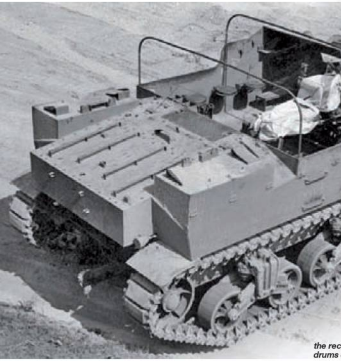


ABOVE LEFT: Infantry of Company 'F', 130th Infantry, 33rd Division march alongside a M7 105mm HMC of the 130th Cannon Company in the town of Maguilian, Luzon in the Philippines on 23rd March 1945. This is from the late 1942 production run. (NARA) ABOVE RIGHT: The first production M7 105mm HMC manufactured in April 1942. It has the E1230 transmission cover from the M3 medium tank, which has a cut-out for the 75mm sponson gun. Also note that the rear sponson box is hinged to fold downward and that there are skids for additional fuel drums on the top of the box. (NARA) BELOW: The finished model.

Armoured Red Leg

Steve Zaloga builds Academy's 1:35 scale kit of the US M7 105mm Howitzer Motor Carriage and offers a historical background and illustrations for intending modellers





This is M7 Serial No. 4 from the rear, which shows the very early production configuration including the lack of vents on the engine deck, the rectangular rear plate, and the skids for fuel drums on top of the early stowage bins. (NARA)

Academy's recent kit release of a 1:35 scale M7 105mm howitzer motor carriage (HMC) was a welcome addition to new Allied kits, as the kit depicts an earlier version than the venerable Italeri kit. The good news is that Academy fixed the flawed suspension found in their earlier M3 Lee medium tank kit. The bad news is that Academy does not appear to have had a clear idea of exactly which variant of the M7 they wished to depict, so the kit is a 'mish-mash' of early, intermediate, and late features.

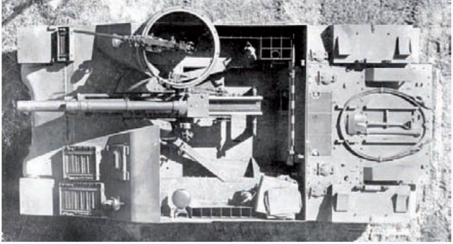
I decided to build mine as an early 1943 production vehicle with the added ammunition armour as used by the US 2nd Armored Division in France in 1944.

The M7 105mm HMC was by far the most numerous and important armoured artillery vehicles in US Army service in World War II. It consisted of a standard divisional M2 105mm howitzer mounted on a M3 medium tank chassis. Production began in April 1942 and continued until the end of the war with 3,441 of the basic M7 105mm HMC completed. Due to its long production run, the M7 underwent continuous modification and improvement gradually incorporating features from the newer M4 medium tank. The initial production vehicles were based on a modified M3 medium tank chassis so were fitted with the same three-piece transmission cover on the bow, complete with the small cut-out on the right side intended for the M3 tank's 75mm sponson gun. This also had a rear engine deck similar to the M3 with a rectangular rear plate and 'pepper pot' exhausts under the rear overhang.

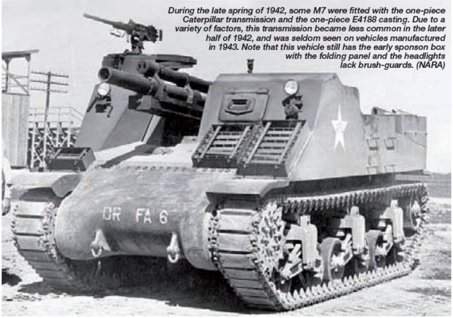
After about 90 to 100 of these were built, the engine deck was changed. To begin with, a new vent was added on the rear deck under a protective armour cover to prevent the build-up of gasoline fumes inside the engine compartment below. Also, in conjunction with similar changes on the M3 and M4 medium tanks, the exhausts were reconfigured, exiting now from the centre of the overhand, with their former location on either side of the engine access doors now taken over by air filters. Some of these early vehicles may have been among the early shipments to the British 8th Army in North Africa, but it is unclear if a maintenance work order (MWO) arrived in time to add the vent covers on the engine deck.

By the summer of 1942, the front three-piece differential was replaced with the type found on the M4 medium tank which had symmetric final drive covers on either side without the right side cut-out seen on the initial production batches. In May 1942, the internal layout was amended to increase the number of ready rounds in the fighting compartment, which required the deletion of two of the original crew seats. Other changes at the time included a redesign of the sponson stowage boxes, and shifting to a top-opening bin instead of the hinged side panel.

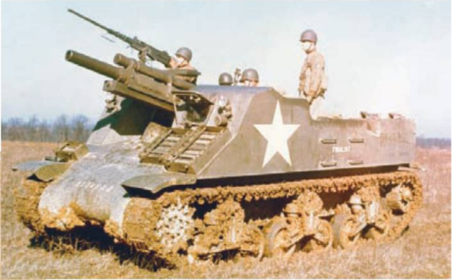
Due to production process, vehicles manufactured in the late spring of 1942 could be fitted with either the original three-piece Iowa transmission or the newer Caterpillar one-piece transmission. Vehicles with the one-piece Caterpillar transmission had the corresponding one-piece E4188 cover. There were problems with the new Caterpillar transmission causing propeller shaft failures, and in conjunction with the greater demand for these transmissions for M4 tanks, the Caterpillar transmission became less common in late 1942 M7 production, and was seldom



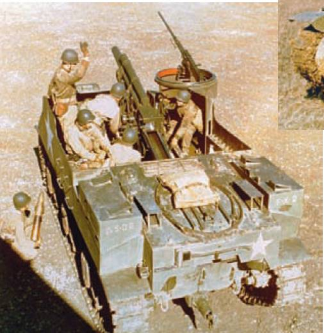
ABOVE: This is a useful overhead view of the early production style of the M7 105mm HMC from the spring and summer of 1942 with the E4188 transmission cover. In addition, there were changes in internal hull stowage starting in May 1942 with the addition of thirteen ready round racks in the crew compartment and the deletion of two of the four crew seats on the side walls. (NARA)



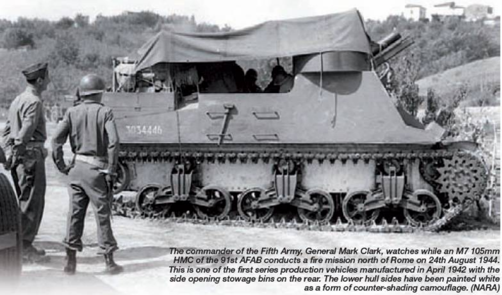
During the late spring of 1942, some M7 were fitted with the one-piece Caterpillar transmission and the one-piece E4188 casting. Due to a variety of factors, this transmission became less common in the later half of 1942, and was seldom seen on vehicles manufactured in 1943. Note that this vehicle still has the early sponson box with the folding panel and the headlights lack brush-guards. (NARA)



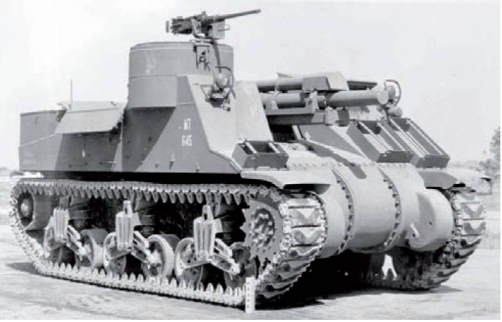
ABOVE: An early production M7 105mm HMC from the Armor School Demonstration Regiment on display at Fort Knox in 1942. (NARA)



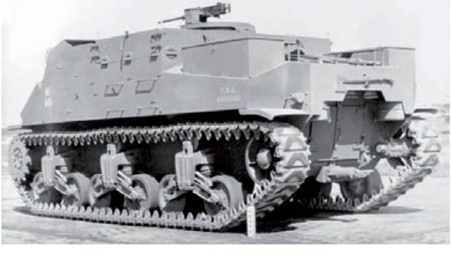
LEFT: A rear view of an early production M7 105mm HMC from the Armor School Demonstration Regiment on display at Fort Knox in 1942 showing some of the early spring production features, such as the fuel drum skids on the stowage bins but with the vents and vent covers. (NARA)



The commander of the Fifth Army, General Mark Clark, watches while an M7 105mm HMC of the 91st AFAB conducts a fire mission north of Rome on 24th August 1944. This is one of the first series production vehicles manufactured in April 1942 with the side opening stowage bins on the rear. The lower hull sides have been painted white as a form of counter-shading camouflage. (NARA)



Fairly typical example of the intermediate production M7 105mm HMC, manufactured in July 1943. It has the deeper pulpit, which was extended downward during January 1943 production. It also has the factory-fitted armoured flaps on the side to protect the ammunition racks. The three-piece transmission housing was re-introduced in the late summer of 1942, but was the style used on the M4 medium tank with the E4151 transmission cover on the right side, which was a mirror image of the E1231 casting on the left. Although some M7 105mm HMC began to have the heavy-duty vertical volute suspension as early as December 1942, it did not become standard until 1944. This vehicle still has the original D37893 bogie assemblies as seen on the M3 and early M4 medium tanks. The armoured cover over the recuperator was not a standard fit. The rear view of the same intermediate production M7 105mm HMC shows the characteristics of this series including the factory-fitted armoured flaps around the fighting compartment to protect the ammunition. (NARA)



seen on vehicles manufactured in 1943, so the three-piece Iowa transmission and the related differential cover become predominant.

Combat use of the M7 on Sicily revealed that the ready ammunition racks on the hull side were not adequately protected. As a temporary expedient, units in the Mediterranean theatre were authorized to weld additional armoured plate along the side to cover the ready racks. In the meantime, a set of folding armour panels was developed to cover the sides and rear of the fighting compartment. These were introduced into the production run in October-December 1942, and were later retrofitted to some unmodified vehicles as kits at depots in the United States before being issued to troops.

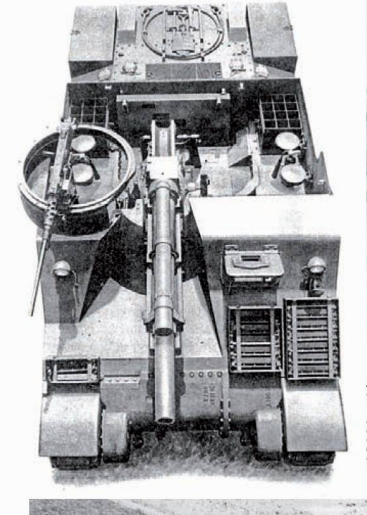
The 'pulpit' machine gun mount on the right side of the vehicle was modified by extending the sides down to permit the gunner to sit in the bay, and this feature was incorporated into intermediate production vehicles by January 1943.

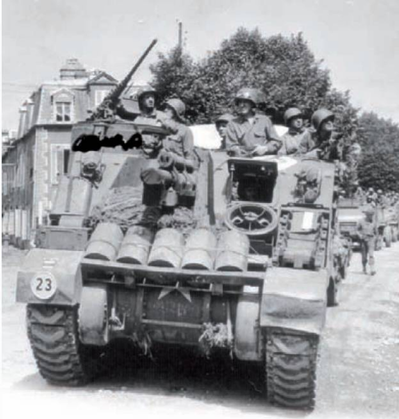
The M7 gradually absorbed changes being developed for the M4 medium tank series. With the adoption of the new D47527 heavy-duty bogie assemblies on the tank in 1942; these gradually replaced the older D37893 (aka 'M3 style') and began to appear sporadically around December 1942. M7 production was temporarily brought to a close in August 1943 after 2,814 vehicles had been completed.

Revised tables of organization in the autumn of 1943 increased the requirement for M7 105mm HMC and production resumed in March 1944. At this time, the M7 design was significantly revised to incorporate improvements from the M4 medium tank and this is the configuration depicted in the older Italeri kit. These vehicles are distinctive as they had the new one-piece E8546 'Mary Ann' transmission cover, revised stowage, modified sponson stowage boxes with a basket added to the top and vents on the outer sides, the heavy duty bogie was adopted as standard, and the engine deck vent was deleted. Since the M4A3 was the preferred version of the M4 for US Army use, parallel production began of the M7B1 105mm HMC that was nearly identical to the 1944 production M7 except for the different engine and rear hull configuration. A total of 826 M7B1 were manufactured through February 1945.

Over a quarter of M7 production was transferred to allied armies under the Lend Lease programme. Britain was the first recipient, and in fact M7 HMCs were first used in combat with British units at the second battle of El Alamein in the summer of 1942 as Peter Brown discusses in his accompanying article.

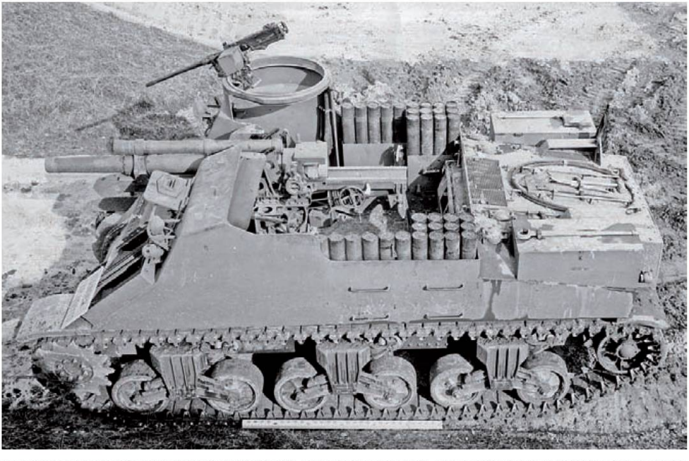
The only other major recipient of the M7 105mm HMC was France which received 283 directly through Lend-Lease plus additional vehicles through US 6th Army Group supply channels to make up for combat attrition. These were widely used by the French 2nd Armoured Division and units of the First French Army in northwest Europe in 1944-45.



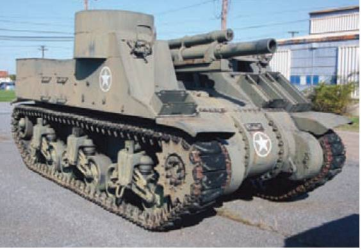


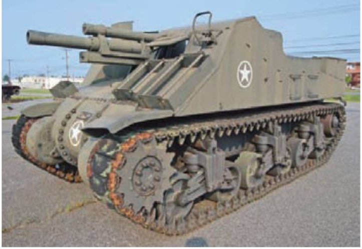
ABOVE: A M7 105mm HMC, probably from the 4th Armored Division, leads an armoured infantry column through Coutances during Operation Cobra on 30th July 1944. The crew has rigged a stowage rack on the front holding five oil cans. (NARA)

LEFT: Overhead view of an early production M7 105mm HMC from the spring of 1942. Note that ammunition stowage is limited to two, 12 round bins and that there are two crew seats on either side. The transmission casting in front of the pulpit machine gun mount is the E1230 from the M3 medium tank with a slight cut-out for the sponson gun. However, this vehicle already has the engine vents, and the fuel drum skids are absent from the tops of the stowage bins. (NARA)

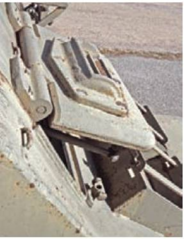


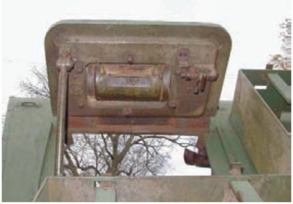
Good example of an intermediate production M7 105mm HMC, Serial 1850, manufactured in December 1942. This was shortly before the deeper pulpit was introduced. Some vehicles produced earlier than this had already been fitted with the armoured flaps around the fighting compartment, but this vehicle still lacks this feature. This M7 is fitted with the D47527 heavy-duty bogie assemblies that were used intermittently on the M7 105mm HMC until being standardized in 1944. (NARA)

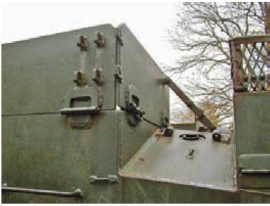




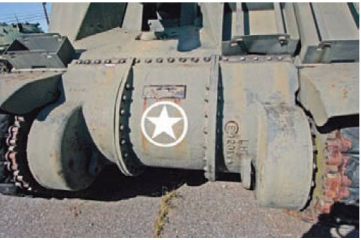
The Ordnance Museum at Aberdeen Proving Ground recently recovered this early 1943 production M7 from the restricted area on post and it has not changed much in a half-century, but for the rust and wear. Ordnance Museum's M7 has the deeper pulpit as manufactured in early 1943.

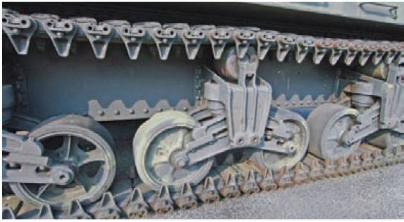






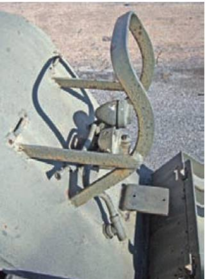
LEFT: Detail view of the driver's hatch on the APG M7. ABOVE LEFT: A nice shot of the interior detail of the visor's hatch from the M7 preserved at Marysville, Kansas. (Bill Miley) ABOVE RIGHT: The armour added on the hull side and rear in 1943 to protect the ammunition; note the brace on the rear plate. The Marysville M7 is one of the oldest preserved M7 Priests, and is in the post-1943 configuration with the armour added. (Bill Miley)

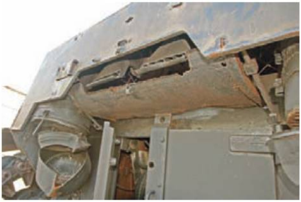


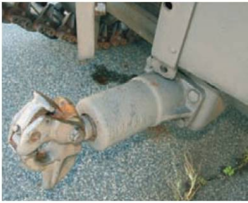


ABOVE: The D37893 bogie assemblies on the APG M7.

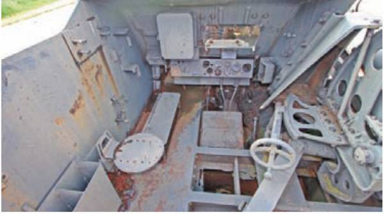
ABOVE: The three-piece differential housing showing details of the casting.

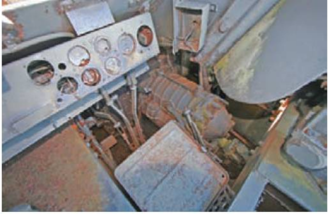




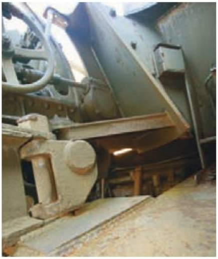


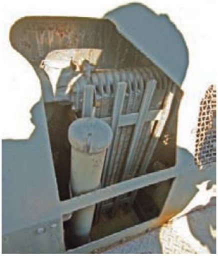
ABOVE LEFT: M4, M4A1 Shermans and M7 Priests with the Continental radial had this guard plate added in 1943 to prevent hostile troops from placing grenades in the engine compartment. ABOVE RIGHT: Detail view of the towing pintle on the APG M7. LEFT: Mounting and brush guard for the left headlight on the APG M7.



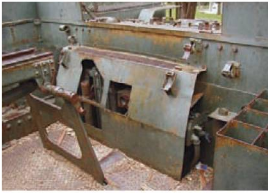


ABOVE LEFT: The driver's compartment on the APG M7. ABOVE RIGHT: Inside the driver's compartment of the APG M7 looking at the transmission; the back of the driver's seat is missing.

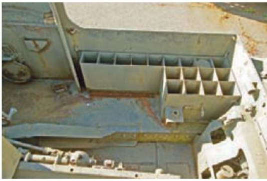




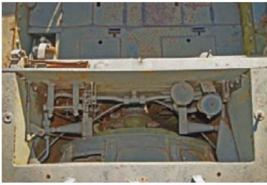
ABOVE LEFT: A detail view of the lower right side of the 105mm howitzer showing how the inner gun shield is attached. ABOVE RIGHT: Inside the opening of the firewall cover over the oil radiator.

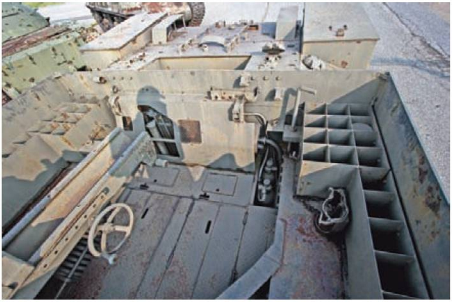


Firewall on the Marysville M7 with the travel lock for the howitzer in place in front of it.

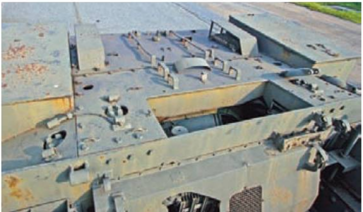


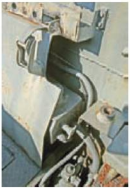
ABOVE: Detail view of the right ammo rack on the APG M7. BELOW: A view inside of the engine opening on the APG M7 with the screen missing.

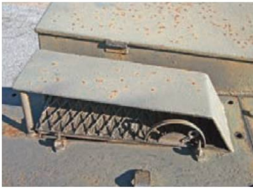


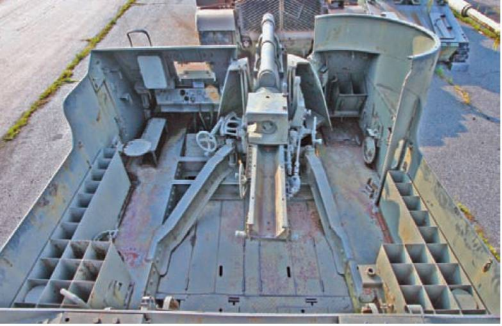


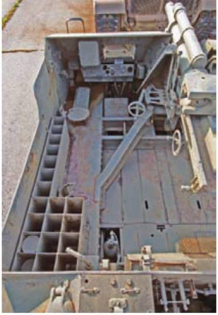
ABOVE: Overall view of the rear of the fighting compartment of the APG M7. BELOW LEFT: View towards the rear engine deck taken from inside the fighting compartment of the APG M7. BELOW CENTRE: Details of the left side of the firewall cover. BELOW RIGHT: The vent, screening and cover on the engine deck.





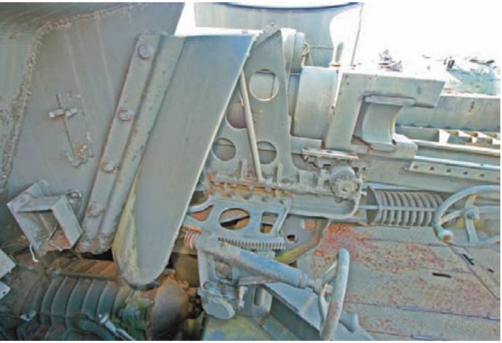


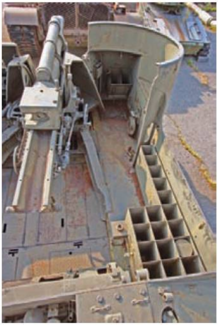




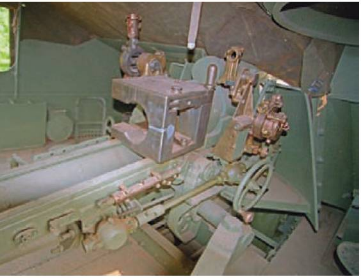
Left side of the fighting compartment on the APG M7 looking towards the driver's station.

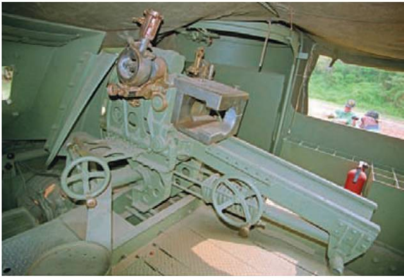
ABOVE: Overview of the fighting compartment of APG's M7. As can be seen, the pulpit is missing its skate ring for the machine gun. **BELOW:** View from the driver's area looking towards the left side of the 105mm howitzer.



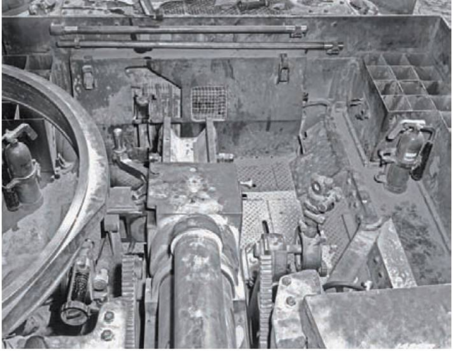


Right side of the fighting compartment on the APG M7 looking towards the pulpit.

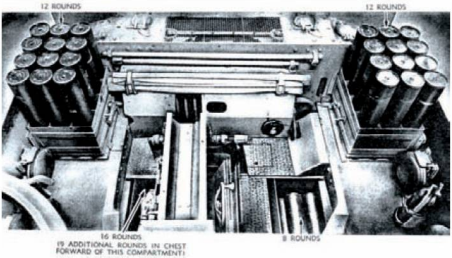




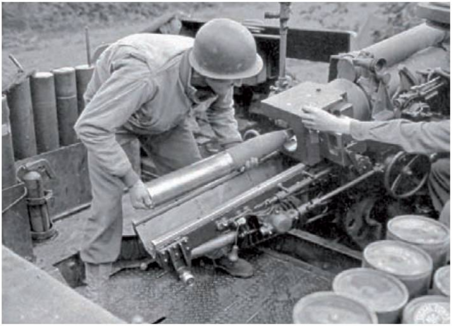
ABOVE LEFT: Inside the restored M7 of the Virginia Military Vehicle Museum, showing the right side of the 105mm howitzer and the mount for the M4 range quadrant and the M16 'elbow' telescope. **ABOVE RIGHT:** A view inside the restored M7 of the Virginia Military Vehicle Museum showing the left side of the 105mm howitzer including the M21 telescope mount for the M12A2 panoramic telescope.



A useful interior view of an early production M7 105mm HMC with the revised ammunition stowage, taken at an artillery range in California in September 1943. (NARA)


12 ROUNDS
12 ROUNDS
16 ROUNDS
19 ADDITIONAL ROUNDS IN CHEST FORWARD OF THIS COMPARTMENT!
8 ROUNDS

For modellers wishing to build an early M7, this illustration from the manual shows the ammunition stowage details.



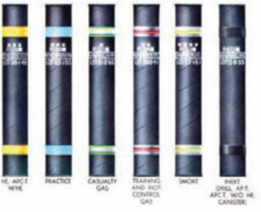
Fighting compartment of an M7 of the 6th Armored Division in France providing especially good details of the sights and the lanyard for firing the howitzer along the right side of the gun race. (NARA)

Academy's Model

Academy does not have the best reputation for detailed research and their previous M10 tank destroyer, M3 Stuart, M3 Lee, and M551 Sheridan have all received decidedly mixed reviews. Cookie Sewell brought an early release of the M7 kit to our monthly AMPS meeting in Aberdeen, Maryland. Our club is blessed with a number of 'Sherman gurus' including Joe DeMarco and Bill Miley from Chesapeake Model Design. So we gave the kit a good thrashing at the meeting, and Cookie bestowed upon me the dubious honour of trying to figure out how to fix the kit.

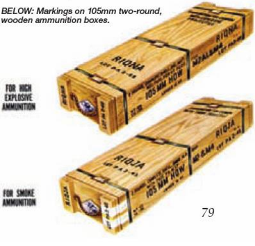
I was lucky on this project because the Ordnance Museum at neighbouring Aberdeen Proving Ground recently recovered an intermediate 1943 production M7, serial 2623 from the restricted ranges at the base which had been sitting largely untouched for half-a-century! Unlike many museum vehicles, it is largely unmodified and so provides an excellent reference source on various details aside from the extensive rust damage. This vehicle was typical of early 1943 production types, so I decided to base my model on this configuration to avoid the usual pitfalls of mixing features from different production batches. Fortunately, this production configuration was fairly typical of those in US Army service in the ETO, though with the added ammo panels added at the depot prior to issuance.

A close inspection of the model revealed a number of problems. To begin with Academy, for some strange reason, depicts the engine deck (Part C2) as the original type without vents and with the original rear overhang


HE, APC-T W/HE
PRACTICE
CASUALTY GAS
TRAINING AND RIOT CONTROL GAS
SMOKE
INERT DRILL, AP-T, APC-T W/O HE, CANISTER

ABOVE: This illustration from an army manual shows the proper colouring of the wartime fibreboard ammunition transport tubes.

BELOW: Markings on 105mm two-round, wooden ammunition boxes.


FOR HIGH EXPLOSIVE AMMUNITION
RIQNA
105 MM HOW
FOR SMOKE AMMUNITION
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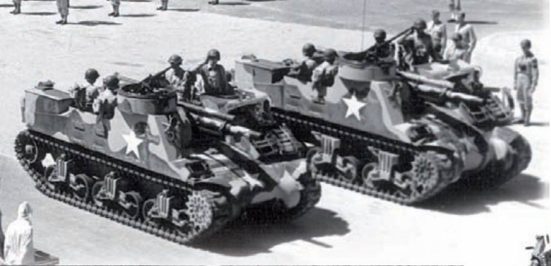
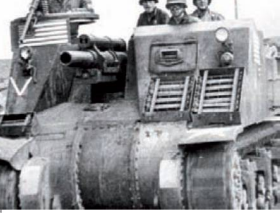
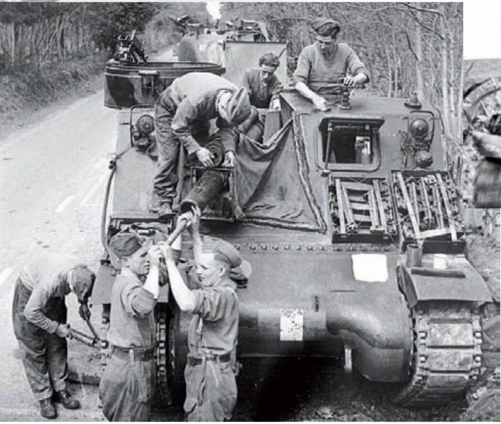


LEFT: A pair of M7 105mm HMC on parade in Rabat on 4th July 1943 during celebrating American Independence Day from a cannon company of the 34th Division. The fancy camouflage scheme was probably an addition for the parade. The nearer vehicle named 'Texas Special' is seen later here in combat. (NARA)

BELOW: A small number of M7 105mm HMC landed in November 1942 during Operation Torch in Algeria, but did not see much combat. (NARA)





ABOVE: The British army made little use of the M7 105mm HMC Priest in northwest Europe, preferring to standardize on the related Sexton 25 pdr. However, some were still used by training units in the UK as seen here in May 1944. This is a spring-summer 1942 production vehicle with the one-piece E4188 transmission cover. (NARA)
BELOW: One of the M7 105mm HMCs of the assault gun platoon of the 191st Tank Battalion during the fighting along the Anzio beach-head in February 1944 while supporting 45th Division operations. The vehicle's star insignia has been crudely over-painted. (NARA)

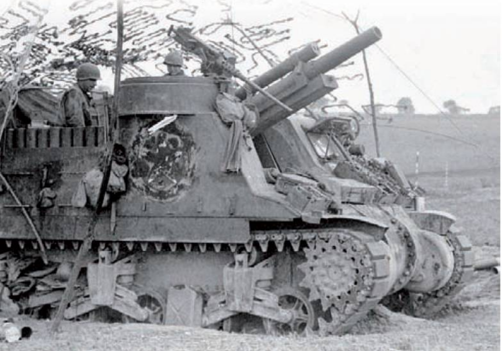
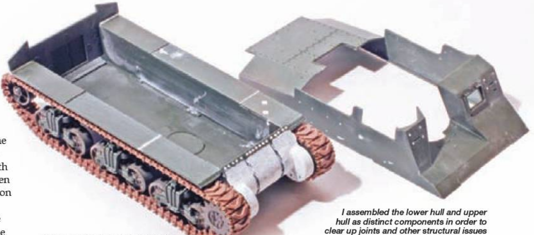


plate (Part C32), which was seen only on the first 100 or so vehicles. This does not match the configuration of the rest of the kit, and would restrict the model to a fairly narrow slice of vehicles if left as in the kit. So these two features had to be updated. The kit does provide a new engine bulkhead (Part C23), but the detail is extremely simplified so I decided to replace this.

The rest of the interior of the kit including the 105mm howitzer seems largely inspired by the old Italeri kit with some modest improvements here and there. Unfortunately, the Italeri kit represents the distinctly different 1944-production batch, and the 1942-43 vehicles had many differences large and small, mostly dealing with the stowage items. Academy does provide an ample supply of ammunition in fibreboard stowage tubes, but to simplify the moulding, they come as linked strips, not individual items. As a result, the two stowage bins (Parts B48, B49) are greatly simplified and lack the characteristic 'egg-crate' dividers.

I had accumulated a few Italeri M7 kits over the years at rock-bottom prices ($10 each - about £5) at local hobby shows, with the intention of converting one back to a 1943 production vehicle. As this plan had gone out the window with the arrival of the Italeri kit, I decided to cannibalize one of these kits to upgrade the Academy model. I had also recently finished a Tasca M4A1 (***Military Modelling*** Vol.38 No.2) and before the spare wheels and other bits went into my 'Sherman bits bin', I decided that they could be used as well. I am not suggesting that these options are necessary to upgrade the Academy kit, but they were a convenient and inexpensive option for me. With the basic work outlined, I proceeded to construction.



I assembled the lower hull and upper hull as distinct components in order to clear up joints and other structural issues before proceeding to the detail phase.

Lower Hull

To their credit, Academy corrected the D37893 (M3 Grant/Lee-style) bogies in the M7 kit compared to their M3 Lee kit, providing two types of outer covers. In addition, the kit comes with a full set of the normal D47527 Sherman-style bogies that means the modeller is going to end up with a lot of 'stuffings' for the Sherman bin when the kit is completed, regardless of the option selected. I wanted to build a typical early 1943 production vehicle, so I opted for the D37893 bogies. Modellers should avoid the reinforced casting option (part H2) and go with the H1 bogie front as the reinforced type does not seem to have been widely used on the M7, presumably due to the casting facility serving the ALCO Schenectady plant where the M7 was built.

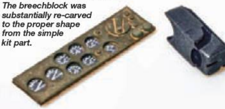
Although corrected, the Academy bogies still have some annoying features, leaving a lot of unsightly gaps on the top of the bogie assembly where the stiffening arms (part H14) attach. The mounting assemblies for the idler on the rear hull (Parts B13, B14) are very old-fashioned and crude, and I replaced them with some Dragon parts from my Sherman stash.

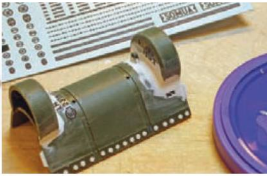
I decided to use the spare Tasca stamped wheels for my model, which offer a somewhat better representation of the wheel. The Academy wheels aren't bad, they're just not as good as Tasca … and ditto the idler wheels and drive sprocket! Academy provides a fairly stiff set of vinyl tracks, which are low on my favourites list, and by 1944, the plain block T41 and T51 tracks had largely given way to the T48 rubber chevron anyway. With my usual favoured RHPS after-market tracks difficult to find, I opted for a set of AFV Club tracks. I was pleasantly surprised to find that AFV Club has switched plastic to a new brown colour, more like Model Kasten tracks, and the plastic seemed a bit easier to handle than their old black plastic tracks.

While the suspension was drying, I turned my attention to the three-piece differential housing. This is OK, but Academy hasn't made much effort to duplicate the texture or casting effects typical of this component. On this model, I used the new Archer 'Surface detail' decals that consist of resin bonded to normal decal paper. Set AR88007 includes a variety of typical US casting numbers and symbols, and this is an easier method than using tiny photo-etch numbers. I used the new Tamiya white surface primer to add texture and to blend the final drive housings to the main component.

I didn't particularly care for the method of attaching the front fenders, which are integral to the front part of the sponson floor (parts H7, H8), so I detached the fenders and attached the sponson floors to the hull tub. This also permits the seams between the sponson floor parts to be sanded smooth. The driver's compartment provided in the Academy kit is a significant improvement over the Italeri kit. A fair amount of additional small detail could be added, but quite frankly, little will be visible when the model is finished. So I added a few missing knobs and levers, but did not do a major rework of the model.

BELOW: Two other detail projects. The new instrument panel was built out of two layers of sheet plastic, some clear plastic sheet, and some Archer dial decals. The breechblock was substantially re-carved to the proper shape from the simple kit part.





I detailed the differential cover including the addition of casting numbers using the new Archer 'Surface Detail' decals.

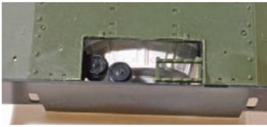
Upper Hull

On examining the upper hull, several problems popped out including the anaemic and misplaced sand-shield strips on the hull sides, and the mountings for a variety of inappropriate internal hull stowage, so I sanded the hull sides flat, and filled in a variety of mould sink marks and mounting holes to make it easier to modify the hull stowage. The kit comes with the late M4 style instrument panel (Part B46) instead of the early M3 style instrument panel, so I scratch built a new instrument panel, but modellers with an Academy M3 Lee kit could use the one from that kit if they don't wish to scratch build a new part; it's not 100% accurate, but much closer than the kit part.

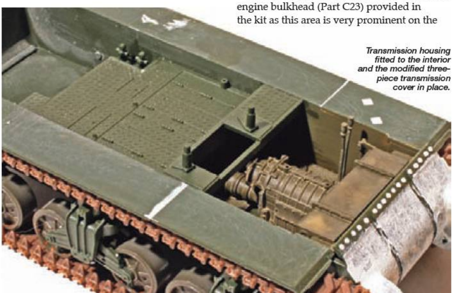
I added a fair amount of new stowage to the area above the driver's station as Academy only provides some of the barest essentials. On the right side under the pulpit, Academy provides the 1944 production 200-round machine gun ammunition rack with horizontal shelves, and this meant building a proper 1943 100-round rack with vertical opening.

Academy moulds the screening over the engine in solid plastic, which is not exactly cutting-edge by today's standards. I had socked away an old Eduard PE set for the Italeri M7 (Set 35140) and I used the screening from that. Having cut open the opening, I decided it needed something to go inside. I added a few parts to roughly simulate the engine detail, but quite honestly this area is not that visible under the PE, so I didn't go overboard on detail or accuracy. I've included a photo here for detail hounds that want to go the whole way.

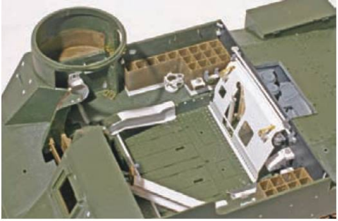
I really didn't care for the overly simplified engine bulkhead (Part C23) provided in the kit as this area is very prominent on the

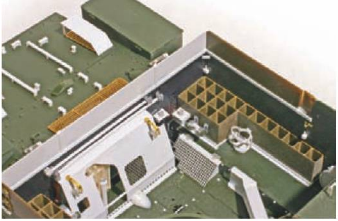


I built an elementary engine compartment knowing full well it wouldn't be clearly visible through the screening! This also shows the new engine bulkhead, cut from Evergreen black sheet plastic.



Transmission housing fitted to the interior and the modified three-piece transmission cover in place.





***ABOVE LEFT:** The cover over the oil radiators on the engine bulkhead took a fair amount of work, as did thinning the detail on the Italeri ammo racks. The stub trails for the howitzer were made from sheet plastic. **ABOVE RIGHT:** The left rear corner of the fighting compartment has the cover over the floor fire extinguishers with a non-skid surface made from Archer 'Surface Detail' decals.*

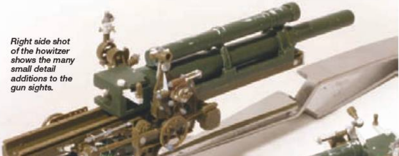
All added detail inside the driver's compartment was painted before sealing up the hull.

model and so I decided to replace it. I'm not sure many modellers will want to go to all this work, and we may eventually see aftermarket upgrades anyway. So I've included photos here for the brave souls wishing to rebuild this area, and I'm not going to go into great detail about all the work necessary. I obtained the oil radiator that is prominent under the cover opening from a CMK Sherman interior set; these radiators can also be found on the Academy M3 Lee kit and a number of Sherman/M10 kits. I also rebuilt the floor bulge over the floor fire extinguishers in the left rear corner of the fighting compartment floor (part B9), which is incorrectly shaped and positioned on the kit. To replace the non-skid surface, I used another of the new Archer 'Surface Detail' decal sheets (Sheet 88008).

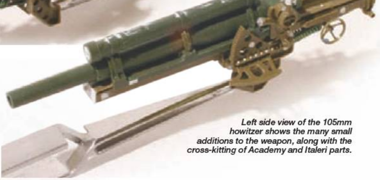
Once all this prep work was done, I assembled the basic upper hull and cleaned up the joints. Unfortunately, in the process, much of the kit's weld bead detail had to be removed, which I replaced later by soaking some Slater's .010 thou plastic rod in liquid cement to give it texture, then used it to recreate the weld beads. I replaced the various tie-downs that had been removed with PE from my US AFV spares bin.

105mm Howitzer

The Academy kit uses more sophisticated slide moulding for some of the howitzer parts than the old Italeri kit, such as the barrel and breech block, but I found that other detail on the cradle was softer and less distinct than on the old Italeri kit! So I ended up cross-kitting the howitzer parts. Neither kit provides particularly accurate or well-shaped stub trails (part D10, D17), so I made a new set from sheet plastic. The main areas in need of detail work are the various gun sights that are extremely simplified on both kits. Incidentally, for modellers looking for a good reference for modelling the M7, I would



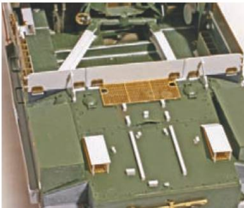
Right side shot of the howitzer shows the many small detail additions to the gun sights.



Left side view of the 105mm howitzer shows the many small additions to the weapon, along with the cross-kitting of Academy and Italeri parts.

The model after the basic structural work has been completed, but before the detail work has begun.

***BELOW:** The vent covers consist of PE from the Eduard M7 set along with sheet styrene covers, the other details are mostly sheet plastic.*



strongly recommend the Tankograd Technical Manual Series No. 6007 on the M7 which provides a very convenient reprinting of all the best photos out of multiple manuals. The Tankograd booklet has an especially nice selection of clear shots of the various sights for the howitzer.

The breechblock and breech on both kits is extremely simplified, and I spent a fair amount of time re-building both parts. Many of the other kit parts, both Academy and Italeri, can use some judicious thinning and clean up to make them look closer to scale.

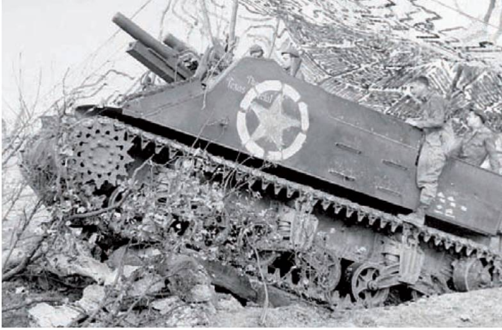
The ammunition racks in the rear hull corners are very apparent on this model, and I used the Italeri parts after carefully thinning down the interior of each compartment using a fine square file. This is tedious work, but the alternative of scratch-building new racks did not appeal to me.

The ammunition itself adds a great deal to the model, but the kit parts have to be disassembled into individual transport tubes. Actually cleaning these up takes far less time than painting them, which proved to be a real chore later in the project. Royal Models has a small set of 105mm howitzer ammunition accessories (Kit 424) that includes transport boxes, open transport tubes, and four rounds of ammunition and four spent brass casings, all in resin. Although expensive, the set is of good quality and adds an interesting level of clutter to the fighting compartment.

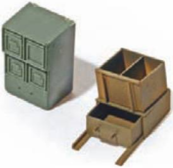
Upper Hull Detail

With the basic assemblies out of the way, I turned my attention to the many and various areas needing more detail. I replaced the brush-guards for the headlights with some photo-etch; I found that some brush-guards from an M8 armoured car set happened to work; I suspect we will see new aftermarket sets from the 'usual suspects'. The headlight area can use some reconstruction of small detail. The siren on the left side came from the Tasca M4A1 leftovers. The Academy driver's front hatch is a bit small and the Protectoscope is not very well depicted. I replaced it with the hatch from the Italeri kit, but I used the interior detail from the Academy kit, which is a bit beefier. I replaced the grouser stowage boxes in the kit with those from the Eduard PE set, though these had to be updated to the later configuration with the added strip over the main box.

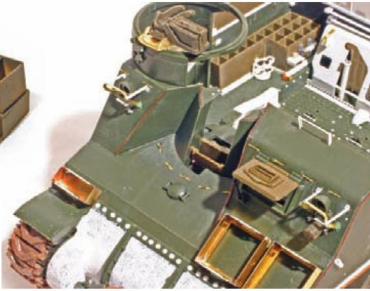
The kit fire extinguishers (parts B47) are a bit too hefty and the stowage rack is much too anaemic. I replaced the lower bottle portion of the fire extinguishers with some plastic rod that I rounded at the top, and rebuilt the stowage racks from scratch. The kit's folding seats (Part C5) are also anaemic and I re-built them completely. Two of the kit seats (Parts B44, D27, D28) are inappropriate for this version. The rifle racks in the kit (Part D35) are also inappropriate; the lighter racks for the M1 carbine were used on this type.



The M7 105mm HMC nicknamed 'The Texas Special' seen in earlier parade photos in Rabat is seen again here six months later during the fighting along the Rapido river in Italy on 22nd January 1944 in support of the 34th Division. It has been driven up an improvised ramp to get higher elevation for a fire mission This vehicle provides an good example of a field modification with an armoured panel added on the side to cover the exposed ammunition racks above the handles on the hull side. On production vehicles these flaps were hinged, but on the field mods they were welded. The vehicle's score against German targets has been painted on the rear hull side. (NARA)



ABOVE: The kit's 200-round ammo box for the area under the pulpit, compared to the 100-round ammo box and tool tray, which I scratch-built from sheet plastic.

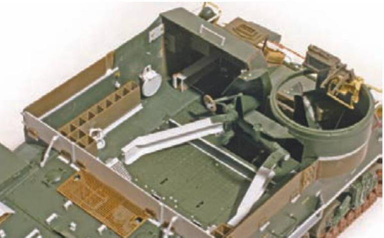


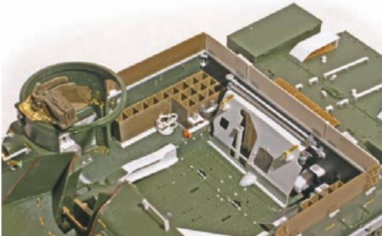
RIGHT: Eduard photo-etched grouser boxes on the front end, with the later top extension from sheet styrene, photo-etched brush guards, and the substituted Italeri driver's hatch.

Finishing Off

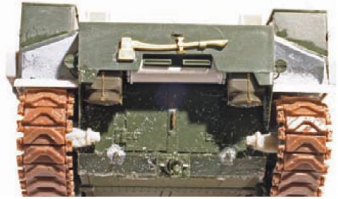
I had picked up the Blast M7 resin stowage set when it first came out. Although it is intended for the old Italeri kit, it can be adapted to fit the Academy Kit. The 14th Armored Field Artillery of the 2nd Armored Division usually stowed

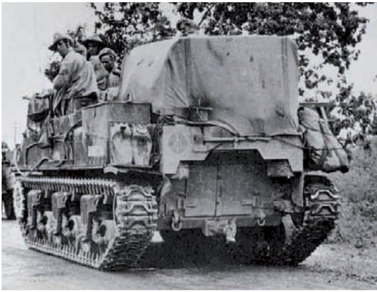
BELOW LEFT: Completed interior shows the added ammunition armour. The side panels were from the Italeri kit while the back panel was made from sheet plastic. BELOW RIGHT: Another view of the engine firewall area with the ammunition armour in place, as well as detail additions on the engine deck.





The finished model prior to painting - with the howitzer left off.



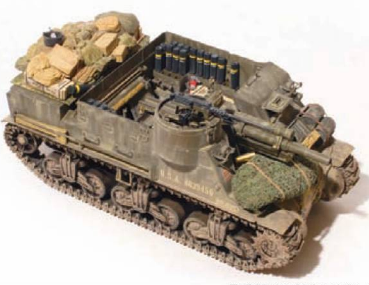


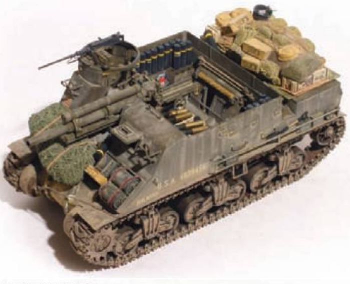
***ABOVE:** Rear view reveals the engine guard plate behind the exhaust stubs as well as the Dragon idler mounts. The axle is from the old Collector's Brass series.*
***RIGHT:** Although the British army had largely abandoned the Priest for the Sexton in northwest Europe, Priests continued to be used in other theatres, including Burma. In April 1945, the British 14th Army closed in on the capital of Burma, Rangoon. Here, a British armoured column is seen outside Rangoon in May 1945 with a Priest in the van. It carries the insignia of the 14th Army, a red disc with a white dagger, bisected by a black band with the army number in the Roman XIV format. This is an intermediate production M7 with the armoured ammo rack flaps. (NARA)*

their vehicles by placing a wooden frame over the engine deck on top of the two stowage bins to keep the vents free. I made this from sheet plastic, distressed using coarse sandpaper. I then cut up the Royal Models stack of 105mm ammunition boxes for two separate boxes, and reshaped the Blast resin part to accommodate these. On the pulpit, I used a Tasca .50 cal machine gun from their separate aftermarket set as it is the best out there at the moment. For the lower carriage assembly, I had an old Collector's Brass item in the stash for many years, and it offers better detail of the lower locking mechanism than the kit parts.

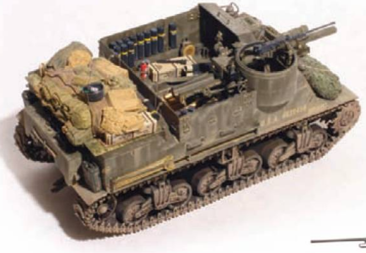
My painting techniques for this model were my usual approach. I used my usual Olive Drab mix for this, about 60-40 Tamiya Olive Drab XF-62 and Dark Yellow XF-60. For the dirty undersides, I started with Khaki Drab XF-51, followed by an irregular overcoat of JSDF Brown XF-72, and finally a sporadic overspray of Buff XF-57. After the base coat had dried, I applied the decals. They are a mixture of Archer dry transfers for the registration numbers, Allied star, and bumper codes, and some kit decals for the bridging circle and transport bar marking. Once the decals were dry, I airbrushed them with a coat of clear gloss mixed with a little Khaki XF-49. This seals the decals to prevent damage from the ensuing washes, and reduces their contrast to avoid a toy-like appearance.

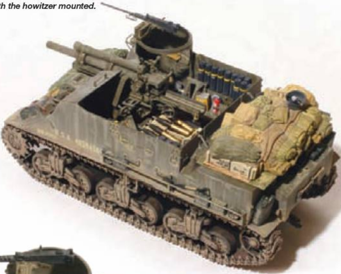
Once the decals were dry, I then began to apply the wash. I used a 'light' wash on the upper portions of the model to replicate a coating of dry summer dust. I mixed the





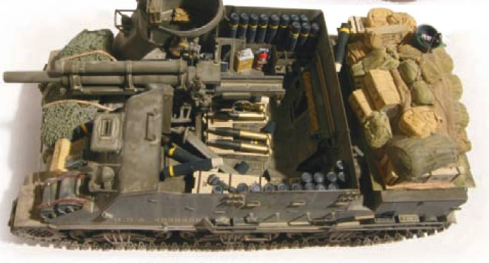
The finished model after painting – with the howitzer mounted.



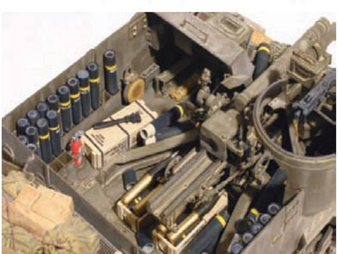


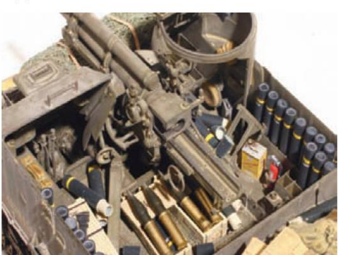
wash from a couple of Humbrol earth colours and a little white oil paint, plus mineral (white) spirits as the solvent and Winsor & Newton Liquin as a medium to help spread and dry the wash. Once this was dry, I did 'dark' dry brushing using some Humbrol Olive Drab such as 155 mixed with a little black oil paint for improved contrast and smoother blending. On the lower surfaces I used the opposite approach with a 'dark' wash of Holbein Sepia oil paint and a light coloured dry brushing.

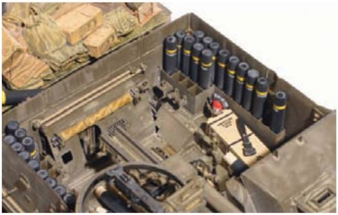
This model required a considerable amount of detail painting on the ammunition and stowage. The numerous ammo transport tubes were first painted in white, then in yellow, then the stripes were masked off, the tubes painted again in black, then given a clear gloss coat, decals applied for the white stencilling, and then a top coat to seal the decals. This was a very tedious process, but

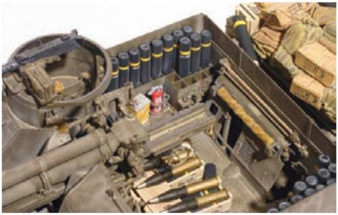


The cluttered fighting compartment after painting. I made the decals on the Royal Model's ammo boxes with Testor's decal paper and my ink-jet printer. Note the added details on the howitzer.

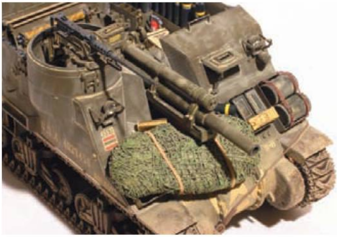


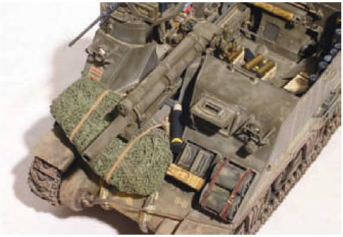




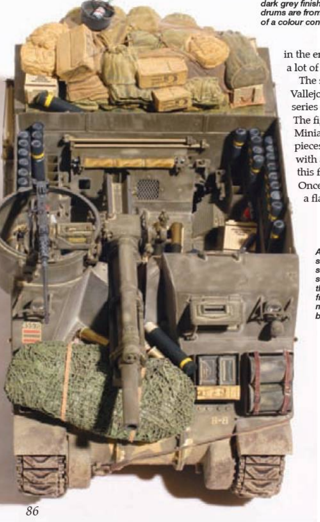


***ABOVE LEFT:** A view towards the engine bulkhead shows the numerous ammunition stowage tubes painted to represent high-explosive ammunition with the characteristic yellow band. **ABOVE RIGHT:** Centre of the fighting compartment area shows the Royal Model's ammunition stacked up under the howitzer.*





***ABOVE LEFT:** Front details highlighted by the excellent Tasca .50 cal heavy machine gun in the usual Parkerized dark grey finish. **ABOVE RIGHT:** The camouflage net was made from epoxy putty and medical gauze; the oil drums are from Tamiya, the .50 cal ammo boxes from Verlinden with a German 20mm ammo box below for a bit of a colour contrast.*



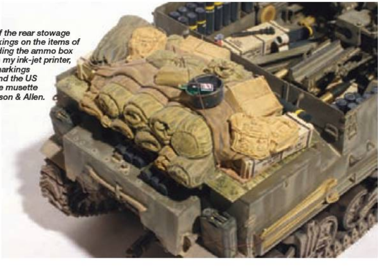
in the end, the ammunition tubes do add a lot of interest to the model.

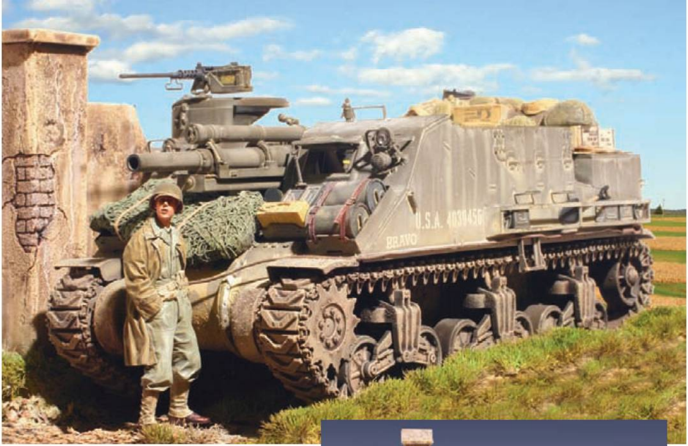
The stowage was all painted in Vallejo acrylics, both from the regular series and the Game-Colors series. The figure is from the recent Alpine Miniature pair, and is one of the best pieces of sculpting I've seen in a while with a very nice casual pose. I painted this figure in Vallejo acrylics also.

Once everything was done, I applied a flat coat of Testor's Dull Cote.

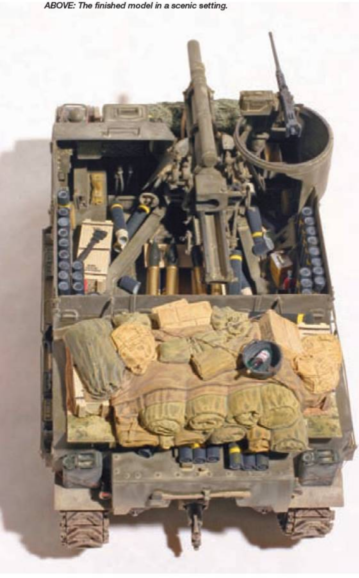
Overall, I had a fun time on this project as I enjoy the challenge of this sort of detail project. I am not sure that other modellers will relish doing so much additional work. But on the other hand, many of the corrections and additions I did on this model are not noticeable except to a die-hard Sherman nut. The Academy kit will build up into an attractive, if not all together accurate model straight out of the box. It certainly could have been a better kit with a bit more attention to detail. ■

Another view of the rear stowage shows the markings on the items of stowage, including the ammo box stencilling from my ink-jet printer, the 'K'-ration markings from Tamiya, and the US markings on the musette bags from Hudson & Allen.

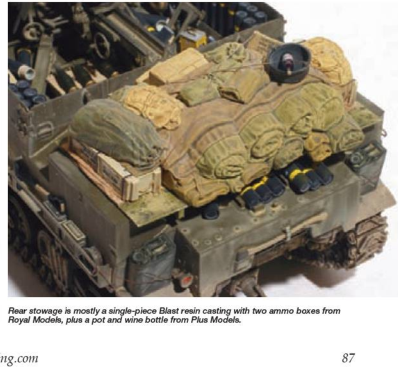




ABOVE: The finished model in a scenic setting.



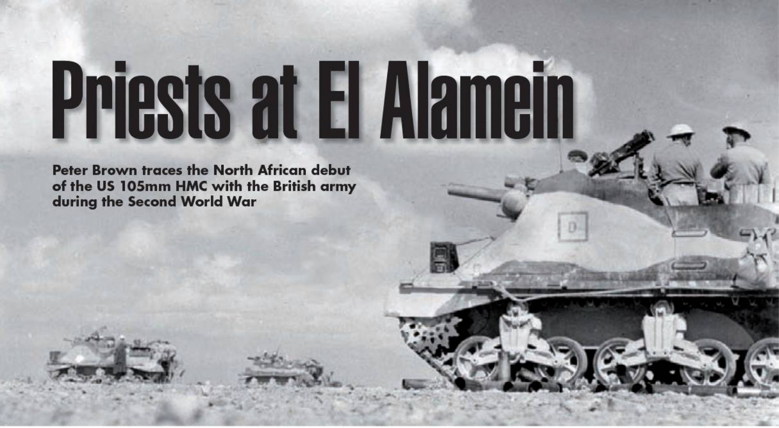
The finished model was mounted on a scenic base consisting of Monroe Perdu's excellent 'Sunken Road' base and an Alpine Miniatures' figure.



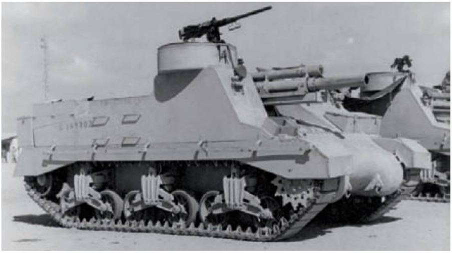
Rear stowage is mostly a single-piece Blast resin casting with two ammo boxes from Royal Models, plus a pot and wine bottle from Plus Models.

Priests at El Alamein

Peter Brown traces the North African debut of the US 105mm HMC with the British army during the Second World War



ABOVE: After a 'shoot', spent cartridge cases litter the ground. (IWM E19022)



ABOVE: A Priest in a British army depot in North Africa. Grouser stowage boxes have been removed, a larger stowage box with lid fitted under the driver's port with another on the right rear of the hull. Sun shield rails have also been added. Paint finish is now plain 'Light Stone' and the only marking is the serial S169302. (TM 3268D4)

ABOVE: A Priest under way in the Desert

According to *Regimental Fire! - The Honourable Artillery Company in World War II 1939-1945* by Brigadier R.F. Johnson (Retd.), published in the late 1950s by the HAC, in early September 1942 11 (Honourable Artillery Company) Regiment Royal Horse Artillery - known for short as 11 (HAC) Regiment RHA - was undergoing many changes of personnel to bring it up to strength after losses in recent actions. Many gun crews had been killed or wounded, and their guns - regarded in Royal Artillery units as their Regimental Colours as well as weapons - lost as their soft-skinned Quad towing vehicles were knocked out. But -

"More sweeping, even, than the changes in the Batteries' personnel was the change in their armament and their role in battle, when a legion of rumours hardened into the definite news that 11 Regiment had been selected as the first to take into battle the Priest, the new self-propelled gun.

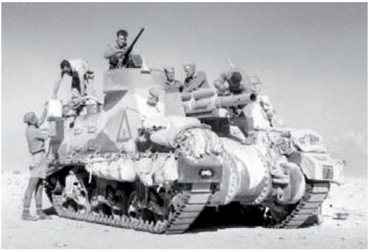
If one single item can be said to have revolutionised the Libyan war it was this. No longer would gun detachments die round their pieces for lack of shelter from enfilading fire, nor guns be abandoned in scores, as they had been in the Cauldron, because their quads had been smashed by shell fire while trying to get them away.

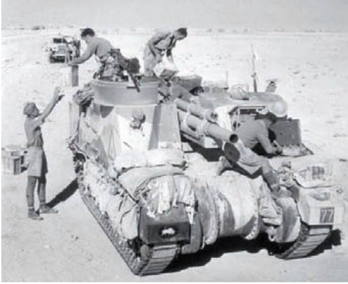
Above all, no longer would British tanks meet almost inevitable destruction from dug-in 88-mm. guns. Now their own artillery, as mobile as they, could follow close behind them, opening fire from hull-down positions with no delay for unlimbering or digging gun pits. Moreover, with their flashless charges they had no longer to worry about flash-cover. This was the weapon the Army had long needed, and the Regiment was proud to be the first to use it.

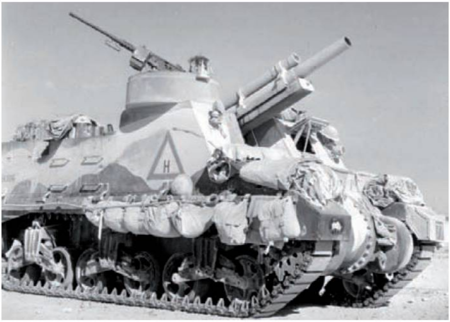
Priests first arrived on 18th September 1942. They proved to be Grant tanks with the turret removed and a 105mm gun-howitzer installed, with protection for the detachment, and a sort of armour plated pulpit mounting a Browning anti-aircraft gun. Under the approving eyes of generals from the Army Commander downwards, under tuition from experts of all kinds - R.E.M.E. craftsmen for maintenance, armoured cavalrymen for tank driving, American instructors for the 'transatlantic gadgets' - the Regiment set about mastering their new weapons in the minimum of time.

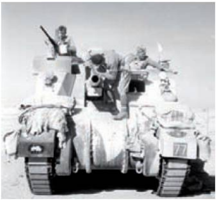
There was a new language to be learned, as well as new technique. Sights were graduated, not in degrees, but in mils. Dial sights became 'panoramic telescopes'; directors became 'aiming circles'. Voice control, in the reverberating hull, was to give place to Tannoy loudspeakers."

So it came about that this Regiment, with a history it could trace back to 1537 and the reign of King Henry VIII, would be the first to use the American designed and built Carriage, Motor, 105mm Howitzer, M7 in action at what was to be a turning point in the Second World War, the Battle of El Alamein. As the account above says, two tactical









This sequence of photos was taken of Priest S169306, the fourth gun in 'D' Troop, 'A' Battery 11HAC on 2nd November 1942. The contrast between the front and rear sections of the triangle on the side could be interpreted as it is a single colour, though close examination show a very thin 'break' vertically and there is also little contrast between the red and blue sections of the Arm of Service sign. 1st Armoured Division white rhino on black oval on the opposite sand shield appears to have a surround that could be red. Pennants are carried on the aerial or rod carried in a radio antenna base. (IWM E18869-72)

problems could be solved in one move, as tanks could now receive close support from their supporting artillery units to destroy or at least suppress the *Afrika Korps* antitank guns and so move ahead to attack their Panzers.

Before they could be issued the vehicles had to be built, despatched, transported, received and prepared. American Loco produced the first, in April 1942 with 38 built during that month; in May only 29 were completed though 58 were built in June with output rising to 152 in July. The first 600 M7s were, for some reason, assigned registration numbers USA 3034234 through 3034833 from a series usually used for tanks.

Tobruk

Sending these new weapons to North Africa came about following the fall of Tobruk in June 1942. At that point in the Desert war a British defeat seemed very likely. Prime Minister Winston Churchill was in the USA when the news came through and President Roosevelt offered assistance and a large shipment of materiel was requested. There was even talk of the US 2nd Armored Division being sent to North Africa which would have put well over 14,000 men with 232 medium and 158 light tanks, 79 armoured cars, 54 self-propelled howitzers, 773 half-tracks and over 2,000 other vehicles into the campaign. At the time the Division was training under its former commander Major General George S. Patton Jr at the Desert Training Centre in America's own desert lands where California, Nevada and Arizona meet.

A more practical plan of sending 300 new Sherman tanks and 100 M7 105mm self-propelled guns was devised, though this meant transferring tanks allocated to American divisions in training for British use. Hurriedly assembled and loaded, the convoy containing these vehicles sailed on 14th July.

Convoys

American sources indicate that this convoy included 100 M7 and 302 Shermans. A German submarine sank *SS Fairport* carrying 32 M7 and 51 Shermans on 16th July. The *Sea Train Texas* was loaded with 25 M7 and 52 Shermans and sailed as a replacement. Details of this shipment are including in the National Archives' file CAB.120/354 in a group of ships known as APPAREL. This lists the ship's name with their cargoes of M7 Priests described as 'Tank Howitzer Tractors' as well as M.4 Tanks that included both M4A1 and M4A2 Sherman II and III plus 57mm guns, which were the US M1 series antitank guns equivalent to the British 6pdr.

Convoy WS.21P due in Suez 3rd September 1942

TARN - 1 Howitzer 81 M.4 32 57mm
EXHIBITOR - 41 Howitzers 57 M.4 87 57mm
EMPIRE ORIOLE - 6 Howitzers 39 M.4
HAWAIIAN SHIPPER - 6 Howitzers 59 M.4

Convoy WS.21PG due Suez 6th September 1942

ZAANDAMI - 14 Howitzers and M.4 (separate figures not recorded)
SANTA CRUZ - 25 Howitzers and M.4 (separate figures not recorded)

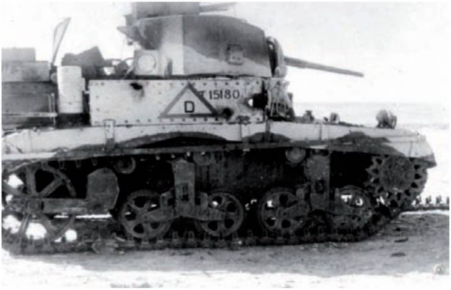
Antisubmarine escort in Mozambique Channel, due Suez 9th September 1942

SEA TRAIN TEXAS - 25 Howitzers 52 M.4

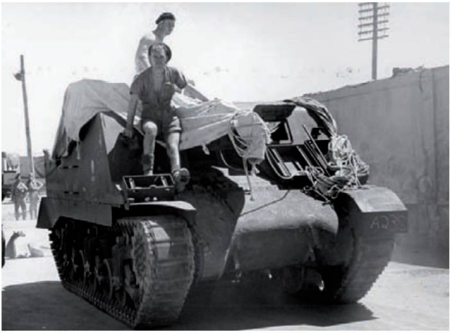
Probably included in WS.21 due Suez 20th September 1942

BANTAM - 6 Howitzers 118 57mm

These ships carried between them at least 85 Priests, the actual total received can be found from another source. The War Diaries for the regiments in 2nd Armoured Brigade state they got their new Shermans from No.5 Base Ordnance Depot at Tel-el-Kebir. Knowing this I looked at their account, held as National Archives file WO.169/6106. This unit handled many of the American AFVs in North Africa, receiving and preparing



ABOVE: 'Eyes of the guns' – an M3 Stuart Light Tank in a three-colour camouflage scheme with two-tone triangle marking on the hull side identify it as an OP tank of 'A' Battery 11HAC. (NARA)



ABOVE: One of the first Priests delivered to North Africa taken on 9th September 1942. Colour at this time would be plain Olive Drab. (IWM E16613)

vehicles newly received from the USA, maintaining used ones and repairing battle casualties. These were referred to as 'Group VII', other classes of vehicle such as lorries having other Group numbers. They list vehicles received and issued on a week-by-week basis throughout 1942, from M.3 Light Tanks (General Stuarts) and M.3 Medium Tanks (Grants and Lees) early in the year through to the introduction of Priests and Shermans, which were at that time known as Swallows.

5BOD War Diary entry for 29th August recorded that, 'Arrival of Priests and Swallows are awaited in Group with considerable interest', and the vehicles arrived over the next four or five weeks. They record the Swallows/Shermans under two headings, 'Swallow' were M4A1 Sherman II while 'Swallow A' were diesel-engined Sherman III M4A2. Smaller quantities of petrol and diesel powered Grants and 'Grant A' were also processed. Receipts during September recorded at the end of each week were:

5th - 27 Priests, 3 Grant (plus 2 Grant from 2B.O.D.), 75 Swallow, 30 Swallow A.

12th - 54 Priests, 18 Grant, 6 Grant A, 153 Swallow, 52 Swallow A.

19th - 13 Priests, 10 Stuart, 19 Grant A, 11 Swallow, 8 Swallow A.

26th - 6 Priests.

This gives a total of 100 Priests plus 325 assorted tanks. As the number of Priests shipped including those lost on the *FAIRPORT* was 132, most of the production to the end of June was sent to North Africa. Some comments in the unit's account are interesting. For 12th September; "Heavy receipts of 'Swallows' and 'Priests' were accounted for by the discharge of the 'treasure ship' S.S. 'Santa Cruz' carrying large numbers of American A.F.Vs and stores on board"; while for the 26th the entry records, "Discharge of SS 'Santa Cruz' completed this week". This is odd that this ship was mentioned, as it was only one of several APPAREL vessels and not even the largest.

Original captions to several IWM photos of M7s used at this time refer to them as 'General Priest' which copied the style of General Sherman, General Grant, etc., though I am not knowledgeable enough about American Generals to know if one so named ever served his country! The term 'Priest' appears in a memo sent to the Prime Minister dated 11th September 1942 that introduces a set of code names to be used when reports were passed 'via Telegraph'. These were applied in the build-up to the battle of El Alamein, and describe the vehicle as 105mm Motor Gun Carriage.

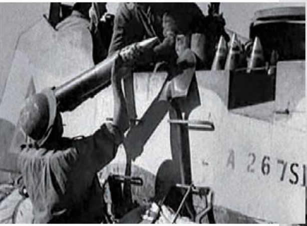
Photos in the IWM show Priests after unloading in plain Olive Drab with sand shields already in place. Among the modifications made were removal of grouser boxes from the superstructure front with new stowage boxes added on the front and also above the left rear idler. Rails for the Sunshield to disguise the vehicles as lorries were added on the hull sides. It would also appear that a radio set was fitted behind the driver, certainly an aerial base is in place on the top angled part of the front superstructure while a photo taken in Burma later in the war shows a No.19 radio set in place.

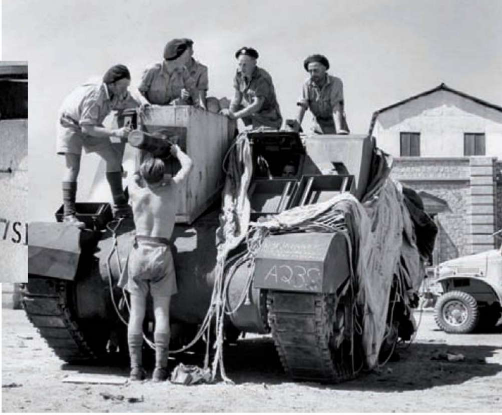
Honourable Artillery Company

11HAC's War Diary for 1942, also at the National Archives, Kew - filed as WO.169/4560 - recorded that six Priests and 18 scout cars arrived on 18th September with another six guns coming on the 21st. After that, the numbers increased steadily to give 24 were on strength by the time the battle commenced. This simple statement needs to be expanded upon, the changeover to such a completely new gun and vehicle in a few weeks was not a simple matter as already mentioned.

For the record, according to the listing of 8th Army equipment at the time of El Alamein in Lt Col Joslen's, *Orders of Battle, Second World War 1939-1945*, the total strength of field guns ready for the battle was 832 x 25pdrs and 24 x 105mm. These were backed up by 32 x 4.5in and 20 x 5.5in medium weapons, with only 32 guns of all types in reserve or workshops. As only 24 of the Priests were in service, this leaves some or all of the remaining 76 unaccounted for.

11 Regt (as they called themselves) went into action on 24th October supporting 1st Armoured Division's 2nd Armoured Brigade. 'A' Battery worked with The Queen's Bays, 'B' Battery with 10th Royal Hussars and 'E' Battery with 9th Queen's Royal Lancers. Each followed their allotted regiment through the minefield gaps and had to turn into uncleared mined areas when deploying to fire. They were fortunate not to lose any Priests on mines, though their Stuart Observation Post tanks were not so lucky when an armour piercing shot disabled one, though it was able to remain in action.





ABOVE: The shells were prepared and fused outside and to the left of the vehicle and handed over the side to the loader. This loading drill can be seen demonstrated in two wartime colour pictures in Steve Zaloga's article of the Armor School Demonstration Regiment on display at Fort Knox in 1942.

RIGHT: Marked as a 'non-runner' a Priest receives the attention of British soldiers – one of whom wears the badge of the Royal Tank Regiment. Note the protective wooden box framework around the gun most likely added when the Priest was prepared for shipping in the USA. (IWM E16614)

A new firing technique had been introduced where shells were fired so as to graze the ground and ricochet upwards to burst above the enemy's trenches. Another trick was to fire a white phosphorus smoke shell onto German positions when *Stukas* were spotted flying overhead to mimic the German's own target marking methods which lead the *Luftwaffe* into bombing the wrong side! Exchanges of fire were not one-sided, at one point enemy shells landed between two of 'B' Battery's guns and for his actions in helping several wounded men before taking command of a gun, Gunner Sidney Westwood was awarded the Military Medal. After four day's fighting 11 Regt had lost several killed and wounded and were withdrawn for a short rest. The War Diary for the 31st says, 'The Priests have been behaving extremely well and that with their added protection they could operate well ahead of towed 25 pounders'.

They were back in action during the night of 1st-2nd November as part of Operation *Supercharge*. The guns fired in support, two of their Stuart OP tanks were hit and their crews killed or wounded. On the 5th, another OP Stuart lost a race to capture the crew of a knocked-out German tank, which meant that General von Thoma, the *Afrika Korps* commander during Rommel's absence, was taken prisoner by an officer of 10th Hussars in a Dingo. There was better luck when a German shell exploded underneath a Priest belonging to 'A' Battery without doing much damage. 2nd Armoured Brigade and its supporting guns swept on though held up by rain around the 7th of November, 'E' Battery was attacked by *Stukas* resulting in two men killed and six wounded and one Priest was badly damaged. 7th Armoured Division took over the pursuit and 1st Armoured Division including 11 Regt were able to pause and rest.

Several IWM photos show Priests at this time and some are reproduced with this article. Another interesting source of images is the classic wartime documentary *Desert Victory* released in 1943. This has sequences showing vehicles driving along and being reloaded as well as in action, which appear to show that at least one was operated with the brakes off as it rolls backwards after firing! As with other sequences in this film, some has been edited to mirror the images from left to right in keeping with the impression that the British forces attacked from right to left to match the maps!

Colour Schemes

Photos and film footage show an unusual colour scheme. While there were official patterns for most types of AFVs, as shown in Mike Starmer's excellent *Alamein and After 1942-43*, no such designs for the new Priest was produced, or if it was it has not come to light. They arrived in Egypt in plain Olive Drab and photos show them in a single, light colour that was probably Light Stone complete with new British serials in black. At some point they had two darker colours added which Mr Starmer believes were brown and black, possibly using Camcolour which was a water-based dye intended to be mixed with a suitable medium for camouflaging buildings and airfield aprons. Certainly some of the photos show uneven coverage, which would not be expected from sprayed paint or even good brushed finishes.

As to markings, published colour plates and decals in the old Italeri and new Academy kits have both errors and omissions. Some years ago Mr J. Armstrong, the Honourable Artillery Company's Archivist, put me in touch with two former officers. One of these was Jack Sewell who kindly loaned me some of his wartime photos. These and his recollections show that the large markings on the hull sides which are the same triangle, square and circle style found in British Armoured Regiments were in the Royal Artillery colours of red and blue, divided vertically with the red portion pointing towards the front of the vehicle. This was confirmed as standard practice on vehicles by the unit's Adjutant Arthur Green, who was captured before the Priests were taken into use. Contrast between the two colours on some photos of Priests does not make this difference clear although the difference is more marked on the film footage and on the side view of the Stuart OP tank. Individual letters for the guns were inside this, A to D for the first, four-gun Troop and E to H for the second. Troops were lettered; those for 'A' Battery being 'C' and 'D' Troops, 'E' and 'F' Troops in 'B' Battery while 'F' Battery comprised 'G' and 'H' Troops. Other markings were as expected, with the 1st Armoured Division's white Rhino on a black oval and the usual Arm of Service sign for a Field Artillery Regiment of white numbers 77 on a red/blue background.

A Capable SP

Some idea of how this new weapons fared in action can be read in their War Diary. On Christmas Eve 1942, the Regiment tried them out against what was called a 'German Mk III Special' - maybe a *PzKpfw III Ausf J* - recovered from the battlefield, and while results with armour piercing shot were disappointing, high explosive shells had a 'very good effect'. Oddly, in some press reports and a publicity booklet produced just after the war by the Priest's manufacturers entitled *American Locomotive Went To War* the M7 is described as a tank destroyer which was not its true role although they did destroy tanks.

A more general appreciation appeared in AFV Technical Report No.11, which covered various aspects of vehicles used at Alamein -

"For the first time in history, we had a supply of S.P. mountings in support of our armoured formations. The value of these is still the subject of keen argument, but all seem to agree that the 'Priest' or 105mm. how on the Grant chassis was a great success."

Other comments include: "105 M.7 very popular with the RAC Members of the Brigade Group, and RA seem also to approve of it. Its chief virtue seems to be that being considerably lighter than the Shermans it is able to keep up with them very well. It gave valuable support to the tanks, which was very much appreciated by their crews. The only criticism was that the round was rather heavy to handle, and the smoke poor."

The comment on the ammunition may be down to the crews being used to the 25pdr that used separate shell and cartridge case whereas the 105mm used 'semi-fixed' ammunition where the two were loaded together though they could be separated to alter the charge in the cartridge to vary the trajectory.

By February 1943 it was being proposed that self propelled guns be used in one of the two field artillery regiments in each armoured division.

Footnote: Battery identification. The apparently odd system for denoting Batteries is due to the fact that when 11 Regiment were raised, Royal Artillery regiments had two batteries so they took the letters A and B from 'A' and 'B' Batteries HAC. 12 Regiment was formed during the period when the Territorial Army was expanded in the months before the outbreak of war when 11 Regiment duplicated itself, naturally taking the next two letters C and D. When the change came in mid-1940 to add an extra battery to both Regiment's organization, each took the next available letter in sequence, thus 11 Regiment became A, B and E and 12 Regiment C, D and F. By the time 13 Regiment was formed taking some of the officers and men from 12 Regiment, the three-battery organisation was in use so they took the next three letters G, H and I for their batteries.

Census numbers

Serials listings refer to 105 M.M. S.P.M. 'M.7' without the name Priest and no contract number is quoted.
Those used at Alamein had serials from batch 169132-171131 listed as 'Various Types, Allotted to Middle East' in the 1944 Chilwell Schedule. A Contract Card at the Tank Museum, Bovington provides more details -

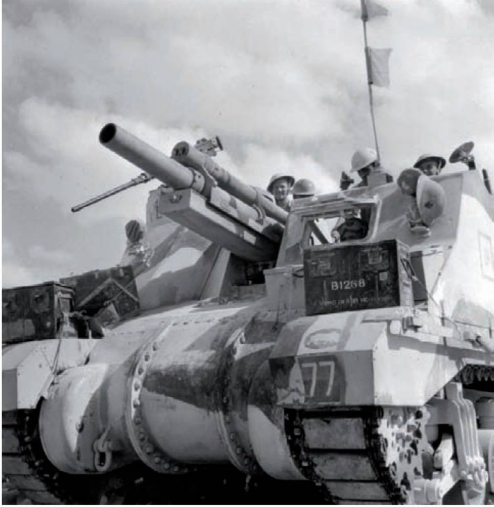
General Grant I SPMs 105mm/T32/M7 to Middle East S169283-356 320 ME.
On 320 Middle East Serial dated 30th November 1942:
S169283 etc on 320 serial
S169287 etc on 326 serial
S169379 etc on 327 serial
Chilwell S169274-99 (26 units)

I am not sure what this all means, 'serial' may be a ship or convoy reference. The IWM unloading photos show A328 chalked on the mudguard, which is in a similar range.

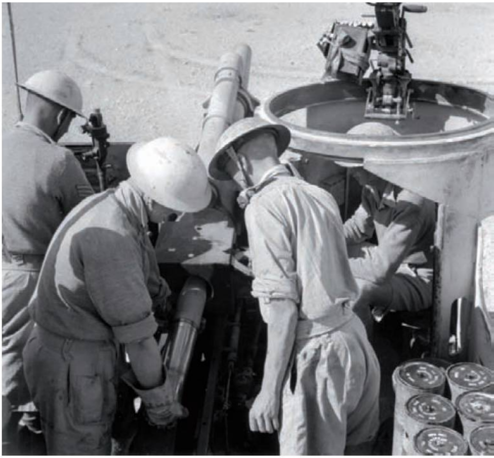
Other numbers allocated to Priests were -

S214438-214637	200 units
S215638-215937	300 units
S230470-230769	300 units
S238464-238466	3 units

(Note: this small batch may have been some sort of prototype shipment. The other batches around this were S238458-61 37 M.M. 'M.3', a vehicle I cannot identify and S238467-69 3in S.P.M. 'M.10')



ABOVE: The square tactical sign with letter D on the side denotes the fourth gun in 'F' Troop of 'B' Battery. (IWM E19020)



ABOVE: Loading the 105mm howitzer. To the left are ready rounds still in their fibreboard tubes. Note the early 100-round ammunition box for the M2 'Fifty Calibre' Browning in the pulpit. (IWM E19023)

These serial batches give a grand total some 886 units; Hunnicutt says 828 were sent to the UK so some numbers may not have been used on vehicles.

Details in Wartime Photographs

IWM E16613 to E16616

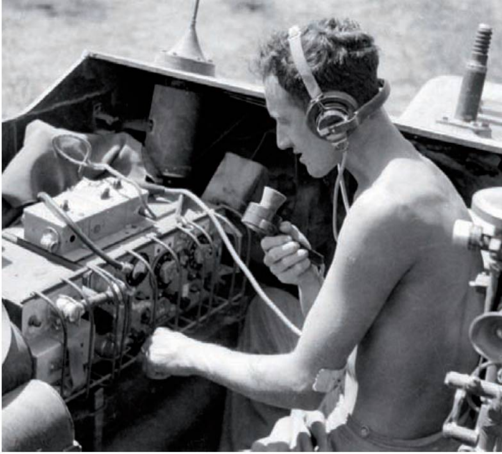
A group of photos taken by Sergeant Chetwin dated 9th September 1942 show some of the first Priests delivered to North Africa being unpacked and prepared. E16614 shows a protective wooden framework around the gun barrel being removed and a canvas cover over the open fighting compartment pushed to one side to allow access. Chalked on the sand shield is A238, the significance of which is not certain, but could be some sort of shipping designation. Above that is the warning NON RUNNER and in smaller letters GUN MOUNTING FOIL IN BATTERY FLOOR PLATE. Whether this is the same vehicle as in E16613 is not certain, it also has A238 chalked on while the words on the area above may have been cleaned off. It appears to be running and missing a section of sand shield, so could have been taken slightly later. The shipping markings on the side can be seen, but not read in the original print. Whether these are the same vehicle or not, both photos show the one-piece E4188 transmission casting and the original grouser stowage boxes in place. Colour at this time would be plain Olive Drab.

Tank Museum M7 Priest 3268D4

Another depot photo showing a Priest after preparation. Grouser stowage boxes have been removed, a larger stowage box with lid fitted under the driver's port with another on the right rear of the hull. Sun shield rails have also been added. Paint finish is now plain 'Light Stone' and the only marking is the serial S169302

IWM E18869 to E18873

Credited to Sergeant Groom, No.1 Army Film & Photographic Unit this series dated 2nd November 1942 is captioned 'THE GENERAL PRIEST, another new British weapon. It is a 105mm Howitzer on a self-propelled chassis. Having a high turn of speed and being easily manoeuvred, it is proving a most effective weapon. One of these guns, it is claimed, has already knocked out 14 German 88mm guns and 2 enemy tanks.' They show S169306, fourth gun in 'D' Troop, 'A' Battery 11HAC from various angles in full unit markings. The contrast between the front and rear sections of the triangle on the side could be interpreted as it being in a single colour, though close examination show a very thin 'break' vertically and there is also little contrast between the red and blue sections of the Arm of Service sign. 1st Armoured Division white rhino on black oval on the opposite sand shield appears to have a surround that could be red. This gun also appears in *Desert Victory*, firstly moving towards the camera and then being loaded with ammunition from the left hand side. Stills show a greater contrast between the two parts of the triangle. Views from the left side show a shovel pushed into the rear set of side rungs and the left-hand serial has an additional prefix so reads A267S16-something though the complete serial is not in the frame.



ABOVE: Not North Africa, – but later in Burma shows one of the locations for a radio in the Priest. Note where the two aerials have been mounted for this No.19 radio set. (IWM SE3340)

Pennants are carried on the aerial or rod carried in a radio antenna base.

IWM E19020 to E19023 Priest in action.

E19020 shows a square tactical sign with letter D on the side denoting fourth gun in 'F' Troop of 'B' Battery. Close examination shows a subtle difference in shade between the front and rear portions of this. There is a name painted neatly on the machine gun pulpit, only the letters EVE can be made out from this angle so the full name is unknown. Markings are the 1st Armoured Division sign in black and white over the Arm of Service grouped on one mudguard only. Note the use of 3in mortar ammunition boxes as stowage and a single eye attached to the front bogie unit.

E19022 shows what must be the same gun from the side. Spent cartridge cases litter the ground after a firing session, which was filmed and used in the documentary *Desert Victory*. A doctored version of this photo without the battery marking appeared in both *Regimental Fire!* and *The Honourable Artillery Company 1537-1947* by G. Gould Walker (Gale and Polden Limited, Aldershot 1948).

E19023 view inside the fighting compartment with crew loading the 105mm. To the left, ready rounds still in their fibreboard tubes can be seen, their arrangement suggests this vehicle is fitted with the extended stowage for ready rounds along the superstructure sides. At this time the recuperator tube above the gun barrel was not wound round with rope, later photos show a light-coloured rope was used. Note the early 100 round box for the ammunition for the gun M2 Fifty Calibre Browning in the pulpit.

IWM E19106

Dated 5th or 6th November 1942, original caption reads 'A General Priest firing in the enemy. It is a 105mm gun mounted on a Grant chassis'. This appears to be a still from *Desert Victory*, despite its poor quality it clearly shows the two-colour circle marking of an 'E' Battery gun, another variation in camouflage painting and the additional stowage box above the right-hand idler. What is over the opposite idler is not clear, it could be a cable reel. Other photos taken later show jerrycans stored there. Looking closely, the objects on the engine deck could be vents, but it is hard to be certain. The pile of discarded fibreboard tubes suggests a recent engagement, compare with E19022 that shows shell cases on the left of the vehicle. Perhaps tubes were discarded to one side and cases to the other?

M3 El Al A.

Some time ago Steve Zaloga passed me some photos from US archives of American tanks in British service in North Africa including this one of an M3 Stuart. The three-colour camouflage scheme and two-tone triangle marking on the hull side show it is an OP tank of 'A' Battery 11HAC. *Regimental Fire!* relates that Captain Watt and Gunners' Rogers, Croxton and White of 'A' Battery were killed when their tank was penetrated by a German shell. Whether this was their tank has not been determined. In another OP tank the officer was wounded, the driver killed and two others in the crew wounded.

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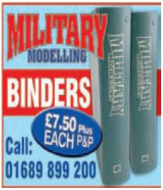

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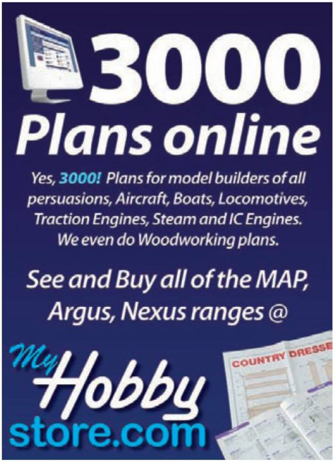
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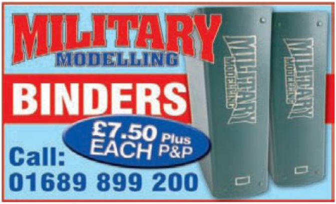
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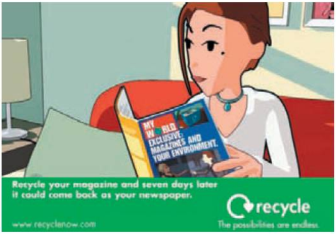
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